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Inventory

HIV Incidence and Prevalence Studies in Canada

May 20

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Inventory of HIV Incidence and Prevalence Studies in Canada May 2001

Division of HIV/AIDS Epidemiology and Surveillance
Bureau of HIV/AIDS, STD and TB
Centre for Infectious Disease Prevention and Control
Population and Public Health Branch
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May 25, 2001

Letter of introduction to recipients of the "Inventory of HIV Incidence and Prevalence Studies in Canada"

The Division of HIV/AIDS Epidemiology and Surveillance, Bureau of HIV/AIDS, STD and TB at the Centre for Infectious Disease Prevention and Control, Health Canada, has prepared this inventory in collaboration with HIV researchers across Canada. Data are updated annually based on published reports, submissions to the National Health Research and Development Program, personal communications, and material that researchers have sent directly to the Division. In addition, principal investigators are consulted regarding summaries of their studies and related references.

In addition to this Inventory, the Bureau has also produced a series of *Epi Updates* that provide a synthesis of HIV/AIDS epidemiology and risk behaviour information for specific population groups (see Appendix C for the list of titles). The *Epi Updates* can be obtained from the Division and from the Bureau Website at http://www.hc-sc.gc.ca/hpb/lcdc/bah Additional information on selected new or ongoing HIV studies is contained in the proceedings of our annual HIV epidemiology meetings (see Appendix D for the list of titles of meeting proceedings).

If you have any further comments or questions regarding the inventory, please contact me at 613-954-5168.

I hope you find this inventory useful.

Yours sincerely

Nguyen

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INTRODUCTION

The purpose of the inventory is to present studies in a manner that allows for easy comparison and to encourage and facilitate a more timely sharing of information. All of the studies included in this inventory are Canadian. To be included, studies had to meet several inclusion criteria. First, all studies had to contain HIV prevalence or incidence data. Second, there had to be information about sampling method and data analysis.

Of the studies done in Canada to date, 107 have met the criteria for inclusion. There may be others, but these have yet to be located/published. Entries in the inventory are based on published reports or updates and have been checked with the respective principal investigator(s).

Many studies utilized unlinked, anonymous methodology[1] under the following conditions:

1. The specimens used were collected for reasons other than the HIV testing. Only routinely collected information, unlinked from personal identifiers, was recorded.

2. Data was not analysed or reported for small populations if identification of individuals was a possibility.

3. Studies were only carried out where voluntary testing was available.

4. The population tested was informed of the research.

Other studies have used confidential, coded or linked methodologies as well as chart reviews, supplementary questionnaires in order to collect more detailed information. Studies done more recently use new laboratory technologies (such as the detuned assay) to estimate HIV incidence among prevalent HIV-positive sample.

Specific types of information are needed in order to annotate each of the studies for the inventory. These include:

(a) Population selection

Specification of the epidemiology of HIV/AIDS in the geographic/population area, if known, and details about the comparability with other studies should be outlined.

(b) Methods - Sampling, Sample Size and Time Frames

Study size is required with details concerning the following: (1) available population (inclusion and exclusion criteria); (2) estimate of HIV prevalence in this population; and (3) sample size. Inclusion of a clear description of the selection of participants, refuser rates and time frame of study is also necessary for assessment and comparison.

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[1] For more information, please refer to the **Guidelines on ethical and legal considerations in anonymous unlinked HIV seroprevalence research** prepared by the Federal Centre for AIDS Working Group on Anonymous Unlinked HIV Seroprevalence. Can Med Assoc J 1990;143:625-7 and Can Med Assoc J 1992;146:1743-4.

(c) Laboratory Testing

For studies with laboratory testing, details about the testing algorithm is requested including any changes undertaken during the course of the study. Issues concerning quality assurance during collection, aliquoting and laboratory testing may be available as well as particulars concerning the sensitivity and specificity of testing procedure. As unexpected lab problems can occur, these may be noted and explained.

(d) Data

An assessment of the issues surrounding bias (e.g., selection and misclassification) may also be identified (e.g., volunteers, convenience sampling, problems of non-response). A description of the strategies undertaken to reduce bias is helpful. There is often a problem of knowing the population at risk (denominator) so that prevalence data be interpreted. As such, it is important to know about the limitations of the data in terms of generalization.

(e) Analysis

Description of method of analyses is important for many reasons. Specification of methods are also important so that future studies can answer questions using the best available methods. To allow for better comparisons, rates should include confidence interval estimates and where rates are compared, they should include tests of significance and tests for trend to allow easier interpretation.

Glossary

Voluntary testing:
Testing is done with the informed consent of the person being tested. There are three kinds of voluntary testing:

1) Anonymous testing:
Testing is done without the collection of any personal identifiers. Results of the test can be linked to the person being tested by a code known only to the person.

2) Coded testing (or Confidential testing or Non-nominal testing):
Results of the test can be linked to the person by a code known only to the person and the health care provider doing the testing. The code does not include the name of the person being tested, so no one else can link the results to the person's identity.

3) Nominal testing:
Results of the test are linked to the person by their name.

Serodiagnostic testing:
Testing is done for diagnostic purposes.

Anonymous unlinked study:
Testing is done on specimens collected for another purpose and does not require individual consent (see ethical and legal guidelines). Results of the test cannot be connected to the person as no personal identifiers are collected during the procedure.

Convenience voluntary study:
Testing is done only on persons who accept to participate at the time of the survey.

Coded linked:
Similar to the anonymous unlinked study in that the test result cannot be linked to a specific individual. The generated code is a combination of information given by the person being tested and the same code can be produced again at subsequent visits for data linking. Given just the code, the person it applies to cannot be identified.

Detuned assay:
A modified HIV antibody test that is applied to HIV-positive samples to detect recent infection (infection occurring in the period approximately 4-5 months before the sample was taken).

Endemic countries:
Countries where heterosexual transmission is believed to be the predominant mode of HIV transmission.

Random sampling:
A method of selecting participants that allows each person in a given population an equal chance of being sampled.

Response rate:
The number who participate (respond) divided by the number who were invited to participate.

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.1 SENTINEL HOSPITAL PATIENTS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
B.C., Sherlock (50) Hospital, 1991-93	Greater Vancouver Vancouver Island Private outpatient laboratories	anonymous unlinked	Unk	1992-93	**Overall** 66,658 **Greater Vanc.** M 28,709 F 32,545 **Vanc. Island** M 2,562 F 2,842	**Overall** 45.0 per 10,000 (40.1-50.5) **Greater Vancouver** Males 93.0 per 10,000 (38.6-49.2) Females 7.4 per 10,000 (4.8-11.2) **Vancouver Island** Males 35.1 per 10,000 (17.2-69.2) Females 0.0 per 10,000 (0-16.8)	• The study has been completed. • Duplicates removed based on gender & birth date. • Prevalence was higher in males in Greater Vancouver compared with males on Vancouver Island. • High overall crude prevalence rate among males in both Greater Vancouver & Vancouver Island was the result of increased testing in known infected patients. • Over representation of people with HIV eliminated by excluding individuals enrolled in the BC AIDS Treatment Registry (Record Linkage).
					Rates excluding individuals enrolled in the BC AIDS Treatment Registry		
					Greater Vanc. M 28,551 F 32,539 **Vanc. Island** M 2,557 F 2,842	**Greater Vancouver** Males 38.2 per 10,000 Females 5.5 per 10,000 **Vancouver Island** Males 15.6 per 10,000 Females 0.0 per 10,000	
Saskatchewan, Williams (49) Hospital, 1990-92	Saskatchewan In and Out-patients of 4 rural hospitals & 1 city hospital	anonymous unlinked	Unk	1991	Total 25,872 North 1,918 South 23,954	North: None tested positive South: 40.1 per 10,000	• The study has been completed. • Duplicates removed by health number. • Of 96 HIV positive cases, 85% came from those attending the HIV or hemophilia clinics located in the Southern area.
Alberta, Houston (100) Hospital, 1998	Edmonton Persons aged 15-54 years who had a blood count as part of care received at emergency departments of 2 largest hospitals serving urban populations	anonymous unlinked	None	98/06-98/07	3,057	1.27%	• Cross-reference of studied subjects with a clinical HIV data base and a provincial lab database found 82% (32/39) of HIV-infected persons known to clinical or lab services. • 69% (27/39) of HIV-seropositive were also HCV seropositive. In multiple logistic regression, HIV was associated with HCV infection.
Ontario, Louie (51) Hospital, 1990	Toronto Patients admitted to a teaching hospital	anonymous unlinked convenience	None	1990	3000	60.0 per 10,000	• The study has been completed.

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.1 SENTINEL HOSPITAL PATIENTS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Quebec, Alary (48) Hospital, 1989-94	Quebec 19 sentinel hospitals Outpatients of day surgery service	anonymous unlinked	None			Rate per 10,000	• The study has been completed. • Estimated 10,805 (8,998-12,892) people in Quebec were HIV positive in 1994 (excluding those who died from AIDS). Estimation was done after removing duplicates from numerator & denominator. • For men living in Montreal, the prevalence fluctuated over time and reasons for this were not clear; it increased significantly in the first 2 years, then decreased in the 3rd year, and up again in the last 6 months. • Different strategies were used for duplicate removal from both numerator and denominator.
				1990-91	M 13,514 F 17,484	Males 20.7 (13.8-30.0) Females 5.1 (2.4-10.0)	
				1991-92	M 12,788 F 16,631	Males 35.2 (25.7-47.1) Females 3.0 (1.0-7.0)	
				1992-93	M 5,861 F 8,168	Males 27.3 (15.6-44.3) Females 6.1 (2.0-14.3)	
				1993-94 (6 mos.)	M 4,452 F 5,630	Males 29.2 (15.6-49.9) Females 1.7 (0.1-9.9)	
				1990-94	Total 85,510 M 37,072 F 48,438	Overall 16.4 (13.7-19.1) Males 32.4 (26.6-38.2) Females 4.1 (2.3-5.9)	

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.2 VOLUNTARY TESTING

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
B.C., Allman (102) General population, 1999	West Kootenay region Rural population in the interior of B.C.	Voluntary convenience snowball	2,000 question printed 252 question. returned Response rate 12.6%	1999	Ever tested for HIV 143	Self-reported HIV status 5.6%	• 58% of 249 respondents having tested for HIV
B.C., Allman & Dovell (105) General population, 2000	East Kootenay region, Rural population in the interior of B.C.	Voluntary convenience snowball	1,5000 question. printed 266 question. returned Response rate 17.6%	2000	Ever tested for HIV 136	Self-reported HIV status 2.2%	• 51% of 266 respondents having tested for HIV
Ontario, Major (21) Lab, 1992-present	Ontario Serodiagnostic testing Nominal testing	voluntary convenience	Unk	1992	149,004	0.57%	• All duplicate positive tests have been removed from the denominator and numerator, but duplicate negative tests have been removed from the denominator within a calendar year only.
				1993	193,125	0.38%	
				1994	184,951	0.39%	
				1995	181,507	0.37%	
				1996	202,236	0.28%	
				1997	175,481	0.31%	
				1992-97	1,086,304	0.38%	
	Ontario Serodiagnostic testing Anonymous testing	voluntary convenience	Unk	1992	9,567	2.21%	• All duplicate positive tests have been removed from the denominator and numerator, but duplicate negative tests have been removed from the denominator within a calendar year only.
				1993	10,238	1.30%	
				1994	8,690	1.08%	
				1995	11,048	1.11%	
				1996	12,611	0.83%	
				1997	10,078	1.08%	
				1992-97	62,232	1.25%	
	Ontario Serodiagnostic testing Coded testing	voluntary convenience	Unk	1992	41,787	1.85%	• All duplicate positive tests have been removed from the denominator and numerator, but duplicate negative tests have been removed from the denominator within a calendar year only.
				1993	51,166	1.22%	
				1994	46,724	1.14%	
				1995	48,863	1.17%	
				1996	51,209	0.81%	

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.2 VOLUNTARY TESTING

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
				1997	38,758	1.00%	
				1992-97	278,507	1.20%	
	Ontario Serodiagnostic testing Combined data (Anonymous, Nominal, Coded testing)	convenience voluntary	Unk	1985-86	15,083	10.51%	• Starting from 1992, data have been enhanced (call back to determine missing risk data) and all duplicate positive tests have been removed from the numerator and denominator, but duplicate negative repeat tests have been removed from the denominator within a calendar year only.
				1987	61,017	2.55%	
				1988	70,733	2.06%	
				1989	76,753	2.23%	
				1990	98,956	2.14%	
				1991	141,632	1.35%	
				1992	210,560	0.87%	
				1993	253,338	0.59%	
				1994	240,671	0.56%	
				1995	241,180	0.56%	
				1996	265,700	0.41%	
				1997	254,818	0.38%	
				1998	272,848	0.37%	
				1999	263,268	0.35%	
				1992-99	2,002,383	0.50%	
Quebec, Alary (47) Physician, 1988-91	Selected 7 clinics in Montreal, Quebec City, Sherbrooke People presenting to physician requesting HIV testing or testing were prescribed for diagnostic purpose	voluntary convenience	10%	1988-91	8,115	7.6% over 3 years	• Questionnaire collected demographic & risk data • Possible selection bias • In-house codes were used for tracking multiple visits of the same subjects and seroconverters • Incidence rates were computed in two ways: OI: using only observed multiple visits during the study RI using also data on self-reported test results done prior to the study • The study has been completed
				88/05-91/06	RI 1,586 (2,309 PY)	Reported incidence (RI) 4.2 per 100 PY	
					OI 590 (499 PY)	Observed Incidence (OI) 3.8 per 100 PY	

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.2 VOLUNTARY TESTING

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Ontario, Remis (106) Lab, 1999-present	Ontario First-time HIV diagnoses detected by the Ontario Laboratory Diagnostic High risk heterosexuals: those having sexual contact with an HIV+ person or a person at risk for HIV Low risk heterosexuals: those not reporting such contact	N/A		1999/10-2000/12	**Incidence density (Rate per 100 PY)**		• Incidence is calculated by using a new laboratory technique (Detuned Assay) to detect infections occurring within four months prior to testing among new HIV diagnoses. • Measured incidence may be overestimated due to biases associated with testing.
					MSM 13,579 PY	MSM 2.6	
					MSM/IDU 711 PY	MSM/IDU 2.8	
					IDU 13,053 PY	IDU 0.65	
					High risk hetero 13,244 PY	High risk heterosexuals 0.18	
					Low risk hetero 212,305 PY	Low risk heterosexuals 0.03	
Ontario, Calzavara (107) Lab, 1992-present	Ontario Repeat testers for HIV **Median inter-test interval** 1.3 years for positives 2.0 years for negatives **Risk factor information available for** 79% of positives 57% of negatives High risk heterosexuals: those having sexual contact with an HIV+ person or a person at risk for HIV Low risk heterosexuals: those not reporting such contact	N/A		1992-99	**Incidence density (Rate per 100 PY)**		• Seroconversions are documented when individuals with previous HIV negative serology test subsequently HIV positive or have indeterminate results. • Incidence density is calculated by the number of incident cases of HIV during the interval divided by the number of person-years of observation during the interval. • Measured incidence may be overestimated due to biases associated with testing.
					269,824 repeat testers 651,369 PY of observation	674 documented seroconverters 269,150 repeat negative testers	
					MSM 27,838 PY	MSM 1.11	
					IDU 25,876 PY	IDU 0.35	
					High risk hetero 25,670 PY	High risk heterosexuals 0.09	
					Low risk hetero 172,582 PY	Low risk heterosexuals 0.02	
Atlantic, Rozee (1) Lab, 1985-92	Atlantic Region People presenting to physician requesting HIV testing	voluntary convenience	Unk	1985-88	13,786	2.9%	• Lab in NB, Nfld & PEI implemented HIV testing in 1991 • Numbers included repeat tests.
				1989-90	9,420	2%	
	Nova Scotia only			1985-90	15,826	2.1%	• Before 1991, no record for first time positive. Of the 120 positives in 1991-92, 80 were first time positive
				1991-92/8	8,367	1.4%	

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.2 VOLUNTARY TESTING

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Newfoundland, Donovan (65) Case finding, 1993-95	Conception Bay North People presenting to testing sites (self referral or physician referrral)	voluntary convenience	15%	94/03-94/10	152	1.3%	• Study aims at case findings, preventive counseling, collection of demo and risk behaviour information; • Testing is confidential but positive results will be reported to the NFLD. Ministry of Health.

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.3 YOUNG ADULTS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
BC, Sherlock (50) Hospital, 1991-93	Greater Vancouver Island Private outpatient laboratories aged 15-19 years	anonymous unlinked	Unk	1992-93	Aged 15-19 years 2,733 All ages 66,658	Aged 15-19 years None was positive All ages 5.0 per 10,000	• The study has been completed.
B.C., Miller & Tyndall (84) IDU, 1995-present	Vancouver Open cohort of current IDU (<1 month prior) Participants aged 24 years or younger at enrollment	convenience voluntary with informed consent (paid)		1996/5-2001/01	232	17%	• HIV-positive youth were more likely to: - be female (26% vs 8%, p<0.001) - be Aboriginal (38% vs 10%, p<0.001) - be ever been sexually abused (26% vs 11%, p=0.004) - have engaged in survival sex (32% vs 6%, p<0.001) - attend a needle exchange program frequently (23% vs 6%, p<0.001) - inject cocaine daily (29% vs 11%, p<0.001) - have numerous lifetime partners (25% vs 4%, p<0.001) • Condom use among youth is very inconsistent, with <20% reporting always using a condom during sexual encounters.
Alberta, McDougall & Larke (64) Antenatal, 1993-95	Alberta province-wide Pregnant women screened for Hepatitis B	95% random sample anonymous unlinked	Unk	94/01-95/01	Aged 15-29 years 30,239 All ages 48,467	Aged 15-29 years 2.3 per 10,000 All ages 3.3 per 10,000	• The study has been completed.
Alberta, Guenter (91) IDU, 1998	Calgary Attendees of needle exchange programs	convenience voluntary	None	98/06-98/09	Aged <26 years 33 All ages 272	Aged < 26 years 3.0% All ages 3.3% (1.6-6.4)	• The study has been completed. • Mean age of participants=35.9 years (range 18-55)
Manitoba, Blanchard & Elliott (85) IDU, 1998	Winnipeg IDUs recruited through multiple NEP, treatment programs, street contacts, community clinics with Aboriginal identifiers (Saliva testing)	voluntary	57% of individuals who self-reported ever injecting drugs participated	97/12-98/11	Aged 15-19 years 29 Aged 20-24 years Total 57 Males 24 Females 33 Aged 25-29 years Total 110 Males 52 Females 58	Aged 15-19 years None was positive Aged 20-24 years Total 10.5% (4.0-21.5) Males 8.3% (1.1-26.9) Females 12.1% 3.4-28.2) Aged 25-29 years Total 19.1% (12.5-27.9) Males 28.9% (17.1-43.1) Females 10.3% (3.9-21.2)	• The study has been completed. • The highest HIV prevalence was observed in the male 25-29 age group • HIV positivity was associated with younger age (20-24 years) in females in comparison with males

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.3 YOUNG ADULTS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
					All ages Total 609 Males 336 Females 269	All ages Total 12.6% (10.1-15.5) Males 15.2% (11.5-19.5) Females 9.0 (5.8-13.0)	
Ontario, Calzavara (53) Inmates, 1992-93	Offenders < 18 years in 42 Ontario jails and detention centres (Urine sample testing)	anonymous unlinked	Unk	93/02-93/07	1,331	None was positive	• The study has been completed.
Ontario, Fearon (18) STD, 1991-93	Ontario Blood submitted to provincial lab for VDRL from patients at high risk for STDs	anonymous unlinked	None	1991-93	Aged 15-19 years Males 782 Females 2,374	Aged 15-19 years Males 0.1% Females 0.04%	• The study has been completed.
					All ages Males 8,893 Females 8,069	All ages Males 7.0% Females 0.3%	
Ontario, Myers (89) Bisexual men, 1996-97	Ontario province-wide MSM who have sex with at least one woman in the previous 5 years recruited through a 1-800 toll free line	convenience voluntary	N/A	1996	MSM < 20 years 92	Self-reported HIV status MSM < 20 years None was positive	• The study has been completed.
					All ages 1,314	All ages 1.12%	
Quebec, Alary (48) Hospital, 1989-94	Quebec 19 sentinel hospitals Outpatients of day surgery service	anonymous unlinked	None	1990-94	Aged 14-24 years 6,602	Aged 14-24 years 0.08%	• The study has been completed.
					All ages 66,658	All ages 0.17%	
Quebec, Duval (9) Abortion women, 1990-92	Quebec City Women having abortion at family planning clinics	100% sample anonymous unlinked	None	90/12-92/11	Aged < 20 years 1,049	Aged < 20 years 0.00%	• The study has been completed.
					All ages 21,640	All ages 0.04%	
Quebec, Remis (8) Abortion women, 1989-2000/06	Montreal abortion clinic at a general hospital	anonymous unlinked	Before 95/06 None After 96/05 Serol 7% Quest 7%	1989-2000/06	Aged < 20 years 2,880	Aged < 20 years 0.00% (0.00-0.13)	• The study has been completed. • See also Section 2.2-Women undergoing abortion for more details.
					Aged 20-24 years 7,963	Aged 20-24 years 0.15% (0.08-0.26)	
					Aged 25-29 years 7,792	Aged 25-29 years 0.26% (0.16-0.40)	
					All ages 31,776	All ages 0.21% (0.16-0.27)	

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.3 YOUNG ADULTS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Quebec, Adrien (75) Haitian, 1994-96	Montreal Clients from 8 selected clinics who were born in Haiti, or had at least one parent born in Haiti	convenience voluntary	5.6%	1994-96	Aged 15-19 years 608	Aged 15-19 years None was positive	• The study has been completed. • See also Section 3-Studies in Ethnic Populations
					Aged 20-24 years Total 850 Males 311 Females 539	Aged 20-24 years Total 1.1% (0.5-2.0) Males 1.3% (0.4-3.3) Females 0.9% (0.3-2.2)	
					Aged 25-29 years Total 930 Males 335 Females 595	Aged 25-29 years Total 1.1% (0.5-2.0) Males 0.6% (0.1-2.1) Females 1.3% (0.6-2.6)	
					All ages Total 4,993 Males 1,980 Females 3,013	All ages Total 1.3% (1.0-1.6) Males 1.6% (1.1-2.2) Females 1.1% (0.7-1.5)	
Quebec, Alary & Hankins (22) IDU, 1994-present	Quebec province-wide & Ottawa Active IDU (who injected in last 6 months) recruited from needle exchange programs and outside needle exchange programs	convenience voluntary	Unk	1995-2000	Aged < 20 years Total 844 Males 465 Females 379	Aged < 20 years Total 0.5% Males 0.2% Females 0.8%	• The study is ongoing.
					Aged 20-24 years Total1,133 Males 772 Females 355	Aged 20-24 years Total 4.1% Males 4.0% Females 4.2%	
					Aged 25-29 years Total 936 Males 703 Females 230	Aged 20-24 years Total 12.4% Males 11.5% Females 14.8%	
					All ages Total 6,345 Males 4,666 Females 1,568	All ages Total 14.5% (13.6-15.4) Males 15.4% Females 11.9%	
New Brunswick, Getty (54) Antenatal, 1995-96	New Brunswick province-wide Women receiving prenatal care	100% sample anonymous unlinked	Only one woman refused	95/03-96/06	Aged 10-19 years 1,080	Aged 10-19 years None was positive	• The study has been completed.
					Aged 20-29 years 5,805	Aged 20-29 years 3.4 per 10,000	
					All ages 9,657	All ages 4.1 per 10,000	

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.3 YOUNG ADULTS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Newfoundland, Ratnam (57) Antenatal, 1995-96	Newfoundland province-wide Women receiving prenatal care	100% sample anonymous unlinked	None	95/01-96/12	Aged < 15 years 43	Aged < 15 yearsNone was positive	• The study has been completed.
					Aged 15-19 years 1,274	Aged 15-19 years None was positive	
					All ages 12,002	All ages 1.5 per 10,000	
National, Morisset & Czyziw (76) Work, 1986-96	Across Canada Participants: young adults aged 17-25 years involved in a voluntary international exchange program in 48 developing countries Staff aged 25-40 years Volunteers < 25 years	self-selected			**Prevalence at enrollment for participants**		• Individuals were tested at the time of their enrollment, upon return after spending 3 months in a developing country. • For participants: prevalence rate was based on one positive case from a heterosexual man. The seroconversion case was detected by the 3rd blood test in a man with multiple male sexual contacts (MSM) and unprotected sex while abroad. • For staff members: prevalence rate was based on one positive case from a man who had sex with men. The seroconversion case was detected by the 3rd blood test from a man who had sex with men. • Among the refusals, one staff member (MSM) was found later HIV-positive by a clinic not participating in the study site. • The study also collected socio-demographic and risk factors. • The study has been completed.
			0.08%	1986-96	3,857	2.6 per 10,000 (0.06-14.0)	
				1986	443	None tested positive	
				1987	401	None tested positive	
				1988	462	None tested positive	
				1989	481	None tested positive	
				1990	370	None tested positive	
				1991	311	None tested positive	
				1992	284	None tested positive	
				1993	263	None tested positive	
				1994	364	One tested positive	
				1995	297	None tested positive	
				1996	181	None tested positive	
					Prevalence at enrollment for volunteers		
			13%	1990-94	125	0 per 10,000 (0-295)	
					Prevalence at enrollment for staff members		
			24%	1989-94	264	38 per 10,000 (0.96-211)	
				1989	49	One tested positive	
				1990	46	None tested positive	
				1991	40	None tested positive	
				1992	41	None tested positive	
				1993	38	None tested positive	

TYPE OF STUDY 1. STUDIES IN GENERAL POPULATION 1.3 YOUNG ADULTS							
Study Name, Investigator	**Population Sites**	**Sampling**	**Refusal**	**Year**	**N**	**Main HIV Prev./ Inc. Result**	**Comments**
				1994	50	None tested positive	
					Incidence density for participants		
				1986-96	3,250 initial HIV- 1,423 PY	One person seroconverted 0.07 per 100 PY (0.0-0.4)	
					M 683 PY	M 0.15 per 100 PY (0.0-08)	
					F 740 PY	F 0 per 100 PY (0.0-0.5)	
					Incidence density for staff members		
				1984-94	86 initial HIV- (22 PY)	One person seroconverted 4.5 per 100 PY (0.1-25)	

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.4 HETEROSEXUAL POPULATIONS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
B.C., Rekart (32) Lab, 1988-92	Vancouver Four outreach offices Street-involved persons with heterosexual as a risk factor	convenience voluntary	Unk	1988-92		1.3%	• Possible selection bias
				1988		2.2%	
				1989		0.6%	
				1990		2.5%	
				1991		1.2%	
				1992		1.4%	
Ontario, Major (21) Lab, 1992-present	Ontario Serodiagnostic testing with high risk heterosexual contacts as a risk factor = those having sexual contact with an HIV+ person or a person at risk for HIV (excluding persons from endemic countries)	convenience voluntary	Unk	1992	5,993	0.42%	• Assignment of exposure category was mutually exclusive. • All duplicate positive tests have been removed from the denominator and numerator, but duplicate negative tests have been removed from the denominator within a calendar year only.
				1993	7,150	0.57%	
				1994	6,564	0.46%	
				1995	7,680	0.38%	
				1996	8,664	0.29%	
				1997	7,051	0.48%	
				1998	6,343	0.28%	
				1999	5,041	0.44%	
				1992-99	54,486	0.41%	
Ontario, Major (21) Lab, 1992-present	Ontario Serodiagnostic testing with low risk heterosexual contact as a risk factor = those not indicating any other exposure category (excluding persons from endemic countries)	convenience voluntary	Unk	1992	34,869	0.11%	• Assignment of exposure category was mutually exclusive • All duplicate positive tests have been removed from the denominator and numerator, but duplicate negative tests have been removed from the denominator within a calendar year only.
				1993	53,212	0.13%	
				1994	52,301	0.12%	
				1995	61,739	0.13%	
				1996	70,584	0.10%	
				1997	67,510	0.11%	
				1998	69,572	0.10%	
				1999	68,927	0.11%	
				1992-99	478,714	0.11%	

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.4 HETEROSEXUAL POPULATIONS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Ontario, Remis (106) Lab, 1999-present	Ontario First-time HIV diagnoses detected by the Ontario Laboratory Diagnostic High risk heterosexuals: those having sexual contact with an HIV+ person or a person at risk for HIV Low risk heterosexuals: those not reporting such contact	N/A		1999/10-2000/12	**Incidence density (Rate per 100 PY)**		• Incidence is calculated by using a new laboratory technique (Detuned Assay) to detect infections occurring within four months prior to testing among new HIV diagnoses. • Measured incidence may be overestimated due to biases associated with testing.
					High risk hetero 13,244 PY	High risk heterosexuals 0.18	
					Low risk hetero 212,305 PY	Low risk heterosexuals 0.03	
Ontario, Calzavara (107) Lab, 1992-present	Ontario Repeat testers for HIV **Median inter-test interval** 1.3 years for positives 2.0 years for negatives **Risk factor information available for** 79% of positives 57% of negatives High risk heterosexuals: those having sexual contact with an HIV+ person or a person at risk for HIV Low risk heterosexuals: those not reporting such contact	N/A			**Incidence density (Rate per 100 PY)**		• Seroconversions are documented when individuals with previous HIV negative serology test subsequently HIV positive or have indeterminate results. • Incidence density is calculated by the number of incident cases of HIV during the interval divided by the number of person-years of observation during the interval. • Measured incidence may be overestimated due to biases associated with testing.
				1992-99	High risk hetero 25,670 PY Low risk hetero 172,582 PY	High risk heterosexuals 0.09 Low risk heterosexuals 0.02	
					Incidence density among heterosexuals including high risk and low risk heterosexual (Rate per 100 PY)		
				1992		0.012	
				1993		0.033	
				1994		0.045	
				1995		0.037	
				1996		0.030	
				1997		0.032	
				1998		0.046	
				1999		0.035	

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.5 BLOOD DONORS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./Inc. Result Rate per 10,000	Comments
Canadian Blood Services (39) Blood donors, 1991-present	Blood donors Canada	convenience voluntary	None	1991	Total 1,283,531 1st time 161,813 Repeat 1,121,718	Total 0.3 1st time 1.4 Repeat 0.2	
				1992	Total 1,193,738 1st time 130,208 Repeat 1,063,530	Total 0.2 1st time 0.7 Repeat 0.1	
				1993	Total 1,152,101 1st time 125,202 Repeat 1,026,899	Total 0.2 1st time 0.7 Repeat 0.1	
				1994	Total 1,103,204 1st time 116,453 Repeat 986,751	Total 0.1 1st time 0.7 Repeat 0.1	
				1995	Total 1,000,779 1st time 103,461 Repeat 897,318	Total 0.1 1st time 0.8 Repeat 0.1	
				1996	Total 956,327 1st time 93,812 Repeat 862,515	Total 0.1 1st time 0.2 Repeat 0.1	
				1997	Total 947,450 1st time 101,569 Repeat 845,881	Total 0.1 1st time 0.3 Repeat 0.1	
				1998	Total 905,870 1st time 96,4459 Repeat 809,425	Total 0.1 1st time 0.1 Repeat 0.1	
				1999	Total 750,502 1st time 89,405 Repeat 661,097	Total 0.1 1st time 0.2 Repeat 0.0	
	British Columbia	convenience voluntary	None	1991	Total 134,248 1st time 13,923 Repeat 120,325	Total 0.2 1st time 0.0 Repeat 0.2	
				1992	Total 128,463 1st time 12,046 Repeat 116,417	Total 0.3 1st time 1.7 Repeat 0.2	
				1993	Total 123,184 1st time 10,222 Repeat 112,962	Total 0.2 1st time 1.0 Repeat 0.1	
				1994	Total 111,400 1st time 9,759 Repeat 101,641	Total 0.1 1st time 0.0 Repeat 0.1	

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.5 BLOOD DONORS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./Inc. Result Rate per 10,000	Comments
Canadian Blood Services (39) Blood donors, 1991-present	British Columbia	convenience voluntary	None	1995	Total 95,004 1st time 7,912 Repeat 87,092	Total 0.2 1st time 0.0 Repeat 0.2	
				1996	Total 84,612 1st time 5,632 Repeat 78,980	Total 0.0 1st time 0.0 Repeat 0.0	
				1997	Total 96,592 1st time 7,309 Repeat 89,283	Total 0.0 1st time 0.0 Repeat 0.0	
				1998	Total 97,491 1st time 6,598 Repeat 90,893	Total 0.0 1st time 0.0 Repeat 0.0	
				1999	Total 101,398 1st time 10,057 Repeat 91,341	Total 0.2 1st time 2.0 Repeat 0.0	
Canadian Blood Services (39) Blood donors, 1991-present	Blood donors Alberta	convenience voluntary	None	1991	Total 133,444 1st time 14,604 Repeat 118,840	Total 0.0 1st time 0.0 Repeat 0.0	
				1992	Total 119,113 1st time 11,208 Repeat 107,905	Total 0.2 1st time 0.9 Repeat 0.1	
				1993	Total 118,824 1st time 11,265 Repeat 107,559	Total 0.1 1st time 0.9 Repeat 0.0	
				1994	Total 112,038 1st time 10,654 Repeat 101,384	Total 0.2 1st time 1.9 Repeat 0.0	
				1995	Total 106,922 1st time 10,107 Repeat 96,815	Total 0.0 1st time 0.0 Repeat 0.0	
				1996	Total 111,476 1st time 11,934 Repeat 99,542	Total 0.0 1st time 0.0 Repeat 0.0	
				1997	Total 108,668 1st time 13,076 Repeat 95,592	Total 0.0 1st time 0.0 Repeat 0.0	
				1998	Total 116,500 1st time 13,033 Repeat 103,467	Total 0.3 1st time 0.3 Repeat 0.0	

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.5 BLOOD DONORS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./Inc. Result Rate per 10,000	Comments
				1999	Total 121,044 1st time 12,957 Repeat 108,087	Total 0.0 1st time 0.0 Repeat 0.0	
	Saskatchewan	convenience voluntary	None	1991	Total 60,600 1st time 6,025 Repeat 54,575	Total 0.0 1st time 0.0 Repeat 0.0	
				1992	Total 57,022 1st time 4,971 Repeat 52,051	Total 0.0 1st time 0.0 Repeat 0.0	
				1993	Total 58,024 1st time 5,179 Repeat 52,845	Total 0.0 1st time 0.0 Repeat 0.0	
				1994	Total 55,619 1st time 4,653 Repeat 50,966	Total 0.0 1st time 0.0 Repeat 0.0	
				1995	Total 51,895 1st time 5,137 Repeat 46,758	Total 0.0 1st time 0.0 Repeat 0.0	
				1996	Total 46,047 1st time 4,681 Repeat 41,366	Total 0.0 1st time 0.0 Repeat 0.0	
				1997	Total 48,271 1st time 4,569 Repeat 43,702	Total 0.0 1st time 0.0 Repeat 0.0	
				1998	Total 44,078 1st time 3,878 Repeat 40,200	Total 0.0 1st time 0.0 Repeat 0.0	
				1999	Total 42,991 1st time 5,453 Repeat 37,538	Total 0.2 1st time 0.0 Repeat 0.3	
	Blood donors Manitoba	convenience voluntary	None	1991	Total 78,354 1st time 6,048 Repeat 72,306	Total 0.3 1st time 1.7 Repeat 0.1	
				1992	Total 73,847 1st time 4,912 Repeat 68,935	Total 0.0 1st time 0.0 Repeat 0.0	
				1993	Total 69,881 1st time 5,059 Repeat 64,822	Total 0.1 1st time 2.0 Repeat 0.0	

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.5 BLOOD DONORS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./Inc. Result Rate per 10,000	Comments
				1994	Total 65,416 1st time 4,096 Repeat 61,320	Total 0.0 1st time 0.0 Repeat 0.0	
				1995	Total 58,500 1st time 4,432 Repeat 54,068	Total 0.0 1st time 0.0 Repeat 0.0	
				1996	Total 54,802 1st time 4,487 Repeat 50,315	Total 0.0 1st time 0.0 Repeat 0.0	
				1997	Total 46,992 1st time 3,508 Repeat 43,484	Total 0.0 1st time 0.0 Repeat 0.0	
				1998	Total 45,976 1st time 3,517 Repeat 42,459	Total 0.2 1st time 0.0 Repeat 0.2	
				1999	Total 44,874 1st time 3,927 Repeat 40,947	Total 0.0 1st time 0.0 Repeat 0.0	
Canadian Blood Agency (39) Blood donors, 1991-present	Ontario	convenience voluntary	None	1991	Total 450,551 1st time 60,536 Repeat 390,015	Total 0.3 1st time 1.2 Repeat 0.2	
				1992	Total 422,282 1st time 49,544 Repeat 372,738	Total 0.1 1st time 0.6 Repeat 0.1	
				1993	Total 411,697 1st time 49,867 Repeat 361,830	Total 0.2 1st time 0.6 Repeat 0.1	
				1994	Total 396,210 1st time 46,100 Repeat 350,110	Total 0.1 1st time 0.7 Repeat 0.1	
				1995	Total 360,690 1st time 40,048 Repeat 320,644	Total 0.1 1st time 1.0 Repeat 0.0	
				1996	Total 336,663 1st time 32,487 Repeat 304,176	Total 0.1 1st time 0.3 Repeat 0.0	
				1997	Total 342,272 1st time 37,267 Repeat 305,005	Total 0.1 1st time 0.8 Repeat 0.1	

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.5 BLOOD DONORS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./Inc. Result Rate per 10,000	Comments
				1998	Total 349,138 1st time 39,511 Repeat 309,627	Total 0.0 1st time 0.3 Repeat 0.0	
				1999	Total 349,569 1st time 46,689 Repeat 302,880	Total 0.0 1st time 0.0 Repeat 0.0	
	Blood donors Quebec	convenience voluntary	None	1991	Total 291,086 1st time 45,999 Repeat 245,087	Total 0.5 1st time 2.4 Repeat 0.2	
				1992	Total 268,364 1st time 35,263 Repeat 233,101	Total 0.4 1st time 0.9 Repeat 0.4	
				1993	Total 250,195 1st time 31,343 Repeat 218,852	Total 0.3 1st time 0.6 Repeat 0.2	
				1994	Total 245,068 1st time 28,904 Repeat 216,164	Total 0.3 1st time 1.0 Repeat 0.2	
				1995	Total 221,937 1st time 25,476 Repeat 196,461	Total 0.3 1st time 1.6 Repeat 0.1	
				1996	Total 222,612 1st time 25,691 Repeat 196,921	Total 0.2 1st time 0.4 Repeat 0.2	
				1997	Total 212,629 1st time 26,937 Repeat 185,692	Total 0.2 1st time 0.4 Repeat 0.2	
				1998	Total 162,676 1st time 21,677 Repeat 140,999	Total 0.2 1st time 0.0 Repeat 0.2	

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.5 BLOOD DONORS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./Inc. Result Rate per 10,000	Comments
Quebec, Remis (15) Blood donors, 1989-92	Repeat blood donors Montreal Centre Blood Transfusion Service	convenience voluntary	None	89/04-92/02	1,673 PY 267,000 PY M 174,900 PY F 92,100 PY	During 35 months, 11 seroconverted Incidence rate per 100,000 PY: Overall 4.1 (2.3-7.4) Men 5.7 (3.1-11.0) Women 1.1 (0.2-7.7) Montreal 8.0 (3.0-29.0) Quebec except Montreal 1.9 (0.6-5.9)	• Repeat donors constituted 80% of donations. Seroconversion among first time donors are higher than among repeat donors. • Denominator in person-years (PY) was estimated from 1% sample of 359,000 donors.
Canadian Blood Services (39) Blood donors, 1991-present	New Brunswick	convenience voluntary	None	1991	Total 37,588 1st time 4,706 Repeat 32,882	Total 0.3 1st time 2.1 Repeat 0.0	
				1992	Total 36,114 1st time 4,138 Repeat 31,976	Total 0.0 1st time 0.0 Repeat 0.0	
				1993	Total 34,902 1st time 4,725 Repeat 30,177	Total 0.3 1st time 2.1 Repeat 0.0	
				1994	Total 36,212 1st time 4,707 Repeat 31,505	Total 0.0 1st time 0.0 Repeat 0.0	
				1995	Total 31,784 1st time 3,745 Repeat 28,039	Total 0.0 1st time 0.0 Repeat 0.0	
				1996	Total 27,139 1st time 3,132 Repeat 24,007	Total 0.0 1st time 0.0 Repeat 0.0	
				1997	Total 25,004 1st time 3,820 Repeat 21,184	Total 0.0 1st time 0.0 Repeat 0.0	
				1998	Total 24,761 1st time 3,101 Repeat 21,660	Total 0.0 1st time 0.0 Repeat 0.0	
				1999	Total 26,739 1st time 2,911 Repeat 23,828	Total 0.0 1st time 0.0 Repeat 0.0	

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.5 BLOOD DONORS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./Inc. Result Rate per 10,000	Comments
Canadian Blood Services (39) Blood donors, 1991-present	Blood donors Nova Scotia and Prince Edward Island	convenience voluntary	None	1991	Total 59,836 1st time 6,125 Repeat 53,711	Total 0.3 1st time 1.6 Repeat 0.2	
				1992	Total 55,045 1st time 5,224 Repeat 49,821	Total 0.2 1st time 0.0 Repeat 0.2	
				1993	Total 53,295 1st time 4,773 Repeat 48,522	Total 0.4 1st time 0.0 Repeat 0.4	
				1994	Total 52,163 1st time 4,905 Repeat 47,258	Total 0.0 1st time 0.0 Repeat 0.0	
				1995	Total 45,897 1st time 3,675 Repeat 42,222	Total 0.0 1st time 0.0 Repeat 0.0	
				1996	Total 45,196 1st time 2,955 Repeat 42,241	Total 0.0 1st time 0.0 Repeat 0.0	
				1997	Total 40,305 1st time 2,931 Repeat 37,374	Total 0.0 1st time 0.0 Repeat 0.0	
				1998	Total 39,297 1st time 3,112 Repeat 36,185	Total 0.0 1st time 0.0 Repeat 0.0	
				1999	Total 38,878 1st time 4,524 Repeat 34,354	Total 0.0 1st time 0.0 Repeat 0.0	
	Blood donors Newfoundland	convenience voluntary	None	1991	Total 37,824 1st time 3,847 Repeat 33,977	Total 0.3 1st time 2.6 Repeat 0.0	
				1992	Total 33,488 1st time 2,902 Repeat 30,586	Total 0.0 1st time 0.0 Repeat 0.0	
				1993	Total 32,099 1st time 2,769 Repeat 29,330	Total 0.0 1st time 0.0 Repeat 0.0	

TYPE OF STUDY
1. STUDIES IN GENERAL POPULATION
1.5 BLOOD DONORS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./Inc. Result Rate per 10,000	Comments
				1994	Total 29,078 1st time 2,675 Repeat 26,403	Total 0.0 1st time 0.0 Repeat 0.0	
				1995	Total 28,150 1st time 2,931 Repeat 25,219	Total 0.0 1st time 0.0 Repeat 0.0	
				1996	Total 27,780 1st time 2,813 Repeat 24,967	Total 0.1 1st time 0.7 Repeat 0.1	
Canadian Blood Services (39) Blood donors, 1991-present	Blood donors Newfoundland	convenience voluntary	None	1997	Total 26,717 1st time 2,152 Repeat 24,565	Total 0.1 1st time 0.8 Repeat 0.1	
				1998	Total 25,953 1st time 2,018 Repeat 23,935	Total 0.1 1st time 0.8 Repeat 0.1	
				1999	Total 25,009 1st time 2,887 Repeat 22,122	Total 0.4 1st time 0.0 Repeat 0.5	

TYPE OF STUDY
2. STUDIES IN WOMEN
2.1 ANTENATAL/NEWBORN

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
B.C., Schechter (3) Antenatal, 1989-94	B.C. and Yukon Women receiving prenatal care	98% random sample anonymous unlinked	None	1989	22,512	2.7 per 10,000 (0.5-4.8)	• From 1989-94: prevalence rates were higher in Metro Vancouver than in the rest of B.C.(5.1 vs 1.9/10,000, p=0.009) and in the age group 15-29 than 30-34 (4.9 vs 1.2/10,000, p=0.017). • The study has been completed.
				1990	21,671	2.7 per 10,000 (1.1-6.3)	
				1991	22,617	3.5 per 10,000 (1.6-7.3)	
				1992	20,191	4.9 per 10,000 (2.5-9.4)	
				1994	20,793	3.4 per 10,000 (1.5-7.3)	
B.C., Rekart (56) Lab, 1994-present	British Columbia Pregnant women screened for HIV with counselling & informed consent	voluntary convenience	Unk	1994	102	0 per 10,000	• Routine prenatal screening for HIV was recommended by the province in the fall of 1994.
				1995	17,322	6.1 per 10,000	
				1996	23,116	4.8 per 10,000	
				1997 (9 mos.)	19,800	2.0 per 10,000	
B.C., Martin (93) Aboriginal women, 1998-present	B.C. province-wide Status Indian women receiving prenatal care or therapeutic abortion	anonymous unlinked	Unk	2000/09-present		Results not yet available	
Alberta, McDougall & Larke (64) Antenatal, 1993-95	Alberta province-wide Pregnant women screened for Hepatitis B	98% random sample anonymous unlinked	Unk	94/01-95/01	48,467	Overall 3.3 per 10,000 (1.9-5.4) Edmonton 5.1 per 10,000 (1.9-11.1) Outside Edmonton 2.8 per 10,000 (0.8-7.2)	• The study has been completed.
Saskatchewan, Horsman (66) Antenatal, 1994-96	Saskatchewan province-wide Pregnant women screened for VDRL	100% sample anonymous unlinked	Unk	95/01-96/10	20,845	2.9 per 10,000	• The study has been completed. • The study also collected Aboriginal identifiers
Manitoba, Sekla (5) Lab, 1990-91	Manitoba province wide Pregnant women screened for VDRL	100% sample anonymous unlinked	Unk	90/04-91/09	27,627	0.72 per 10,000 (0.1-2.6)	• The study has been completed.
Manitoba, Blanchard (69) Antenatal, 1994-95	Manitoba province wide Pregnant women screened for VDRL	100% sample anonymous unlinked	None	94/08-95/08	T 18,639 W 10,046 O 8,593	Total 3.2 per 10,000 (1.2-7.0) Winnipeg 6.0 per 10,000 (2.2-13.0) Other 0.0 per 10,000 (0.0-4.3)	• The study has been completed. • Prevalence rate was higher in 1994 than in 1990 (3.2 vs 0.7 per 10,000)

TYPE OF STUDY
2. STUDIES IN WOMEN
2.1 ANTENATAL/NEWBORN

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Ontario, Coates (4) Newborns, 1989-91 Ontario, Millson (4) Newborns, 1991-93	Ontario province-wide Women bearing live children (newborn heelprick)	60% sample anonymous unlinked	Unk	89/11-90/10	94,119	2.8 per 10,000 (1.8- 4.1)	• No significant change in prevalence rates over 3 years. Most positive cases were concentrated in the health units with the largest urban centres. • By the third year, there was an increasing number of health units with positive cases • The study has been completed.
				90/11-91/10	90,255	2.2 per 10,000 (1.3- 3.4)	
				91/11-92/10	90,774	1.9 per 10,000 (1.1- 3.0)	
Ontario, Remis (97) Antenatal, 1999-present	Ontario province-wide Pregnant women receiving prenatal care	voluntary		99/01-2000/10	Overall 118,003	Overall 3.2 per 10,000	• The proportion of women with an HIV test prescribed on the prenatal form or performed through the HIV diagnostic service increased from 39% in January 1999 to 51% in October 2000. • During the third quarter of 2000, positivity rates were highest in Ottawa (17 per 10,000) and Toronto (10 per 10,000) compared to elsewhere (2.4 per 10,000).
				99/01-2000/06	99,215	2.7 per 10,000	
				2000/07 2000/09	18,878	5.8 per 10,000	
Quebec and Baffin Island, N.W.T. (2) Newborns, 1989-93	Quebec City region Women bearing live children (newborn heelprick)	random 90% sample anonymous unlinked	Unk	1989	6,049	3.3 per 10,000 (0.4-11.9)	• Very low seroprevalence rates over the 5 year study period. • Small numbers preclude statements regarding geographic & socio-economic links to HIV seropositivity. • The study has been completed. • 6 seropositive cases (1989-93)
				1990	6,223	0 per 10,000 (0-5.9)	
				1991	4,888	4.1 per 10,000 (0.5-14.8)	
				1992	6,653	0 per 10,000 (0-5.6)	
				1993	6,684	3.0 per 10,000 (0.4-10.8)	
				1989-93	30,497	2.0 per 10,000 (0.7-4.3)	
	Estrie region Women bearing live children (newborn heelprick)	random 90% sample anonymous unlinked	Unk	1989	3,694	0 per 10,000 (0-10.0)	• Very low seroprevalence rates over the 5 year study period. • Small numbers preclude statements regarding geographic & socio-economic links to HIV seropositivity. • The study has been completed. • 2 seropositive cases (1989-93).
				1990	3,578	0 per 10,000 (0-10.3)	
				1991	2,873	3.5 per 10,000 (0-19.4)	
				1992	3,505	0 per 10,000 (0-10.5)	
				1993	3,670	2.7 per 10,000 (0.1-15.2)	
				1989-93	17,320	1.2 per 10,000 (0.1-4.2)	

TYPE OF STUDY
2. STUDIES IN WOMEN
2.1 ANTENATAL/NEWBORN

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
	Kativik and James Bay regions Women bearing live children (newborn heelprick)	random 90% sample anonymous unlinked	Unk	1989	768	0 per 10,000 (0-47.9)	• Very low seroprevalence rates over the 5 year study period. • Small numbers preclude statements regarding geographic & socio-economic links to HIV seropositivity. • The study has been completed. • One seropositive case (1989-93).
				1990	824	0 per 10,000 (0-44.7)	
				1991	810	0 per 10,000 (0-45.4))	
				1992	944	10.6 per 10,000 (0.3-58.9)	
				1993	883	0 per 10,000 (0-41.7)	
				1989-93	4,229	2.4 per 10,000 (0-13.2)	
	Baffin Island, North West Territories Women bearing live children (newborn heelprick)	random 90% sample anonymous unlinked	Unk	1989	205	0 per 10,000 (0-178.3)	• The study has been completed. • No seropositive cases (1989-93).
				1990	198	0 per 10,000 (0-184.6)	
				1991	206	0 per 10,000 (0-177.5)	
				1992	257	0 per 10,000 (0-142.5)	
				1993	236	0 per 10,000 (0-155.1)	
				1989-93	1,102	0 per 10,000 (0-33.4)	
Quebec, Hankins (2) Newborns, 1989-93	Montreal Island Women bearing live children (newborn heelprick)	random 90% unlinked anonymous	Unk	1989	18,982	18.4 per 10,000 (12.8-25.6)	• HIV seropositivity associated with: * living in lower income neighborhood * living in neighborhood with higher percentage of single mothers, mothers born in Haiti, mothers who speak French and mothers who did not complete high school. • Prevalence appears to be stable over period 1989-93. • The study has been completed.
				1990	18,251	15.3 per 10,000 (10.2-22.2)	
				1991	19,225	13.0 per 10,000 (8.5-19.2)	
				1992	20,475	15.6 per 10,000 (10.7-22.1)	
				1993	20,329	20.2 per 10,000 (14.5-27.4)	
				1989-93	97,262	16.6 per 10,000 (14.1-19.3)	
	Quebec province-wide Women bearing live children (newborn heelprick)	random 90% unlinked anonymous	Unk	1989	77,216	6.1 per 10,000 (4.5-8.1)	• Geographic and socioeconomic link to HIV seropositivity among childbearing women • The study has been completed.
				1990	75,540	5.2 per 10,000 (3.7-7.1)	
New Brunswick, Getty (54) Antenatal, 1995-96	New Brunswick province wide Women receiving prenatal care	100% sample anonymous unlinked	Only one woman refused	95/03-96/06	9,657	4.1 per 10,000 (1.1-10.6)	• The study has been completed. • All of the positive cases were among women older than 25 years of age.

TYPE OF STUDY 2. STUDIES IN WOMEN 2.1 ANTENATAL/NEWBORN							
Study Name, Investigator	**Population Sites**	**Sampling**	**Refusal**	**Year**	**N**	**Main HIV Prev./ Inc. Result**	**Comments**
Nova Scotia, Johnston (7) Newborns, 1992-93	Halifax County Childbearing women (cord bloods)	100% sample anonymous unlinked	None	92/02-93/12	8,864	1.1 per 10,000 (0.03- 6.3)	• Only one specimen tested HIV positive. • The study has been completed.
Nova Scotia, Johnston (62) Newborns, 1993-94	Outside Halifax County Childbearing women (cord bloods or newborn bloods)	100% sample anonymous unlinked	None documented	93/04-94/12	5,219	0 per 10,000	• One WB indeterminate • The study has been completed.
PEI, Abbott (63) Antenatal, 1994-96	PEI province-wide Pregnant women who had prenatal Coombs testing	100% sample anonymous unlinked	None	94/03-96/03	4,428	0 per 10,000 (0-8)	• 80% of women tested were between 20-34 years of age. • The study has been completed.
Newfoundland., Ratnam (6) Antenatal, 1991-93	Newfoundland province-wide Women receiving prenatal care	100% sample anonymous unlinked	None	91/11-93/10	14,911	8.7 per 10,000 (4.7-14.9)	• More than one half of positives were from one particular region, yielding a regional crude for that region. • All positive cases were in the age group 15-29 years. • The study has been completed.
Newfoundland., Ratnam (57) Antenatal, 1995-96	Newfoundland province-wide Women receiving prenatal care	100% sample anonymous unlinked	None	95/01-96/12	12,002	1.5 per 10,000	• All positive cases were in the age group 25-34 years. • The study has been completed.

TYPE OF STUDY
2. STUDIES IN WOMEN
2.2 WOMEN UNDERGOING ABORTION

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Manitoba, Sekla (5) Lab, 1990-91	Manitoba province wide	anonymous unlinked voluntary	Unk	90/04-91/03	417	None was HIV positive	• The study has been completed.
Quebec, Remis (8) Abortion, 1989-2000/06	Montreal Abortion clinic at a general hospital Eligible criteria: 89-95/06: women who had abortion and lived in the province of Quebec Since 95/07: women >18 years of age, able to give informed consent.	100% sample anonymous unlinked Voluntary participation for * serology (with written consent) * questionnaire (no consent)	Before 95/06: none 95/07-95/12: Serol: 16% Question: 14% 96/01-96/05: the study was suspended 96/05-96/12: Sero: 13% Quest. 14% 97/01-97/12: Sero 5% Quest.: 7% 98/01-98/12: Serol. 5% Quest. 6% 99/01-99/06: Serol. 7% Quest. 6% 96/05-99/06: Serol. 7% Quest. 7%		**Prevalence by year (Rate per 10,000)**		• The study is ongoing. • Since 1989, 85% of observed positives were among women born in HIV-endemic countries; these women represented 13.1% of all tested women. For information on women from endemic countries, please refer to Table 3 - studies in ethnic populations . • From July 1991, women presenting for a repeat abortion were included in the study for each abortion. • The study also measures HIV incidence of repeat attenders and collects risk information of attenders starting from July 1995. • The proportion of women presenting for a repeat abortion increased from year to year since 1991: 15.1%, 18.1%, 21.2%, 20.9%, 24.7%, 19.4%, 22.5%, 26.2%, and 27.5%.
				1989	1,453 (6 mos.)	21 (4.3-60.0)	
				1990	2,862	17 (5.7-41.0)	
				1991	2,940	14 (3.7-35.0)	
				1992	3,136	19 (7.0-42.0)	
				1993	3,242	15 (5.0-36.0)	
				1994	3,317	27 (12.0-51.0)	
				1995	2,945	24 (9.6-49.0)	
				1996	1,745 (8 mos.)	17 (3.6-50.0)	
				1997	3,176	16 (5.1-37.0)	
				1998	3,002	13 (3.6-34.1)	
				1999	2,708	41	
				2000	1,250 (6 mos.)	40	
				1989/06-2000/06	31,776	21	
				1989/07-2000/06	**Prevalence by region of residence (Rate per 10,000)**		
					27,096	Metropolitan Montreal 24 (18-30)	
					4,570	Rest of Quebec 6.6 (1.3-19)	
					110	Unknown 0 (.0-330)	
					Incidence density (Rate per 100 PY)		
				94/05-2000/06	2,875 PY	2 seroconverted 0.07 (0.008-0.25)	

TYPE OF STUDY 2. STUDIES IN WOMEN 2.2 WOMEN UNDERGOING ABORTION							
Study Name, Investigator	**Population Sites**	**Sampling**	**Refusal**	**Year**	**N**	**Main HIV Prev./ Inc. Result**	**Comments**
Quebec, Duval (9) Abortion, 1990-92	Quebec City Abortion at family planning clinics	100% sample anonymous unlinked	None	90/12-92/11	4,867	4.1 per 10,000 (0.5-14.8)	• 2 seropositive cases; therefore large confidence interval; 1 positive coming from endemic country. • The study has been completed

TYPE OF STUDY
3. STUDIES IN ETHNIC POPULATIONS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
B.C., Rekart (32) Lab, 1988-92	Vancouver Latino Street-involved persons	convenience voluntary	Unk	1988-92		3.6%	• Possible selection bias.
				1988		0%	
				1989		1.6%	
				1990		5.8%	
				1991		5.9	
				1992		0%	
Ontario, Mindell (46) Lab, 1986	Toronto, Black people Self-referrals for HIV testing	voluntary	Unk	1989	89	70.8% (63 HIV positive)	• Many possible biases.
Ontario, Chiavetta (60) Caribbean, 1989	Toronto Household survey among Caribbeans & Non-Caribbeans	convenience voluntary	Interview 65% Serology 70%	89/02-89/12	Total 853 Caribbeans 483 Non-Carib. 370	All Caribbeans and Non-Caribbeans who tested were HIV negative	• Among those who tested HIV negative, 1.7% (14/853) were IDU and 10.8% (32/294) were MSM (at least one contact). • The study has been completed.
Ontario, Major (21) Lab, 1992-present	Ontario Persons from an endemic country Serodiagnostic testing	convenience voluntary	Unk	1992	988	2.3%	• Assignment of exposure category was mutually exclusive • All duplicate positive tests have been removed from the denominator and numerator, but duplicate negative tests have been removed from the denominator within a calendar year only.
				1993	889	2.0%	
				1994	812	1.6%	
				1995	855	2.2%	
				1996	848	3.1%	
				1997	721	1.7%	
				1998	832	2.2%	
				1999	830	2.2%	
				1992-99	6,775	2.2%	
Quebec, Frappier-Davignon (45) Haitian, 1983-84	Montreal Haitian immigrants	random voluntary	12.5%	1983	Total 189 Males 81 Females 108	Overall 2.1% Males 2.5% Females 1.9%	• The study has been completed.
Quebec, Adrien (58) Haitian, 1987-90	Montreal Haitians aged 15 to 39 years	random voluntary	Phase I: 44.9% Phase II: 72.3% Phase III: 80.1%	1987-88 1988-89 1989-90	95 63 65	3.1% 0.0% 3.1%	• The low participation rates make the interpretation of these observed rates very difficult. • The study has been completed.

TYPE OF STUDY 3. STUDIES IN ETHNIC POPULATIONS							
Study Name, Investigator	**Population Sites**	**Sampling**	**Refusal**	**Year**	**N**	**Main HIV Prev./ Inc. Result**	**Comments**
Quebec, Adrien (59) Haitian, 1991	Montreal Haitian clients from 5 selected general practices	voluntary unlinked	15%	91/04-91/06	179	1.1%	• Result was based on 2 HIV (+) • The study has been completed.
Quebec, Adrien (75) Haitian, 1994-96	Montreal Clients from 8 selected clinics aged 15-49 years who were born in Haiti, or had at least one parent born in Haiti	convenience voluntary	Prevalence study Overall 6.1% Males 6.1% Females 5.6% Incidence study Overall 15% Males 6.1% Females 5.6%			**Prevalence**	• Variables associated with high prevalence: * having sex with infected/high risk persons * having <14 years of education * being married/living common-law/divorced/ separated/widowed * having at least one partner in Haiti and not always using condoms * stay in Canada <= 5 years or staying 6-15 years in Canada * having traveled in Haiti in last 5 years
				94/04-96/12	Total 4,993 Males 1,980 Females 3,013	Overall 1.3% (1.0-1.6) Males 1.6% (1.1-2.2) Females 1.1% (0.7-1.5)	
						Incidence density	
				94/10-96/12	535 PY (500 initial HIV-)	No one seroconverted	
Quebec, Remis (8) Abortion, 1989-2000/06	Montreal women born in Haiti attending abortion clinic at a general hospital	unlinked anonymous	Before 95/06: none 95/07-95/12: serol: 14% 96/01-96/05: study suspended 96/05-96/12: serol: 15% Quest.: 18% 97/01-97/12: serol: 3% Questionnaire: 3%	1989	87 (6 months)	2.30 (0.3-8.0)	• 60% of observed positive cases were among women born in Haiti but these represented only 6.4% of tested women. • The study has been completed.
				1990	169	2.37% (0.6-5.9)	
				1991	177	1.70% (0.3-4.9)	
				1992	188	2.66% (0.9-6.1)	
				1993	192	2.08% (0.6-8.3)	
				1994	253	0.79% (0.1-2.8)	
				1995	201	1.99% (0.5-5.0)	
				1996	122 (8 mos.)	2.5% (0.5-7.0)	
				1997	209	1.44% (0.3-4.1)	
				1998	191	1.60% (0.3-4.5)	
				1999	169	2.96%	
				2000	71 (6 mos.)	2.82%	
				1989/07-2000/06	2,029	1.97% (1.4-2.67)	

TYPE OF STUDY
3. STUDIES IN ETHNIC POPULATIONS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Quebec, Remis (8) Abortion, 1989-2000/06	Montreal women born in HIV- endemic countries other than Haiti who attend abortion clinic at a general hospital	unlinked anonymous	Before 95/06: none 95/07-95/12: serol: 19% 96/01-96/05: study suspended 96/05-96/12: serol: 8% Quest.: 10% 97/01-97/06: serol: 5% Quest.: 9%	1989	90 (6 months)	0.00% (0.0-3.3)	• 16.4% of observed positives were among women born in HIV- endemic countries other than Haiti; they represented 6.9% of tested women. • The study has been completed.
				1990	192	0.52% (0.0-2.9)	
				1991	194	0.52% (0.0-2.8)	
				1992	197	1.12% (0.01-2.8)	
				1993	182	0.55% (0.0-3.0)	
				1994	228	1.75% (0.5-4.4)	
				1995	186	0.00% (0.0-1.9)	
				1996	142 (8 months)	0.00% (0.0-2.6)	
				1997	240	0.83% (0.10-2.98)	
				1998	218	0.0% (0.0-1.7)	
				1999	237	0.42%	
				2000	103 (6 mos.)	0.00%	
				1989-2000/06	2,209	0.50% (0.25-0.89)	
Quebec, Remis (8) Abortion, 1989-2000/06	Montreal women born in non-endemic countries other than Canada who attend abortion clinic at a general hospital	unlinked anonymous	Before 95/06: none 95/07-95/12: serol: 14% 96/01-96/05: study suspended 96/05-96/12: serol: 18% Quest.: 24% 97/01-97/12: serol: 5% Quest.: 9%	1989	395 (6 mos.)	0.0% (0.0-0.8)	• The study has been completed.
				1990	815	0.0% (0.0-0.4)	
				1991	966	0.0% (0.0-0.3)	
				1992	1,073	0.0% (0.0-0.3)	
				1993	1,096	0.0% (0.0-0.3)	
				1994	1,133	0.09% (0.0-0.5)	
				1995	1,008	0.2% (0.0-0.7)	
				1996	601 (8 mos.)	0.0% (0.0-0.6)	
				1997	1,205	0.0% (0.0-0.31)	
				1998	1,210	0.0% (0.0-0.30)	
				1999	1,081	0.18%	
				2000	535 (6 mos.)	0.00%	
				1989/06-2000/06	11,118	0.045% (0.015-0.10)	

TYPE OF STUDY
4. STUDIES IN ABORIGINAL PEOPLES

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
National, Shields (98) Street, 1999-present	Street youth aged 15-24 years frequenting drop-in centers who have been out of their home for three sequential nights or more Seven sites across Canada (Vancouver, Edmonton, Saskatoon, Winnipeg, Toronto, Ottawa & Halifax)	convenience voluntary snowball	Refusal rates are difficult to assess because youth are very eager to participate and are often turned away	2000	29% of 1,733 participants were Aboriginal	Results specific to Aboriginal youth are not yet available	• The study is part of the STD Sentinel Surveillance aimed at Canadian street youth. It collects detailed risk behaviour information and estimates prevalence of gonorrhea, chlamydia, hepatitis B, hepatitis C, Herpes, HTLV-1 and HTLV-2 among street youth. • Phase II was completed in 2000. • Phase III is in progress.
B.C., Rekart (32) Street, 1988-92	Vancouver Four outreach sites Street-involved persons (Caucasian, Hispanic, Latino Canadian, Aboriginal)	convenience voluntary	Unk	1988	286	5.7%	
				1989	119	4.7%	
				1990	612	8.6%	
				1991	863	1.3%	
				1992 (10 mos)	636	1.9%	
B.C., Mathias (29) IDU, 1991-93	Vancouver, Victoria Needle exchange users who self-identified as Aboriginal	convenience voluntary	Unk	1992-93	Aboriginal 119 Non-Aboriginal 392	Aboriginal 2.5% Non-Aboriginal 5.4%	• The study has been completed.
B.C., Rothon (17) Inmates, 1992	B.C Adult inmates admitted to provincial correctional centres who self-identified as Aboriginal (Natives)	voluntary unlinked	F 13% M 7.6%	92/10-92/12	F admitted 54 F saliva tested 47 M admitted 568 M saliva tested 525	None of Aboriginal women were HIV + Aboriginal men 0.9% Overall 0.9% (0.3-2.2)	• Aboriginal & non-Aboriginal men had similar prevalence rate (0.9% vs 1.2%) but non-Aboriginal women had a higher rate (4.6%). • Higher refusal rate of HIV testing in Aboriginal women; so unable to generate conclusive data. • The study has been completed.
B.C., Martin (78) Alcohol & drug addict, 1992-present	British Columbia Clients of native alcohol & drug treatment centres	convenience voluntary linked	20%	92/01-2000/12	Total 2,513 Males 1,254 Females 1,226	Total 0.37% (0.12-0.63) Males 0.25% (0-0.59) Females 0.52% (0.06-0.96)	• The study is ongoing. • The study also measures prevalence of HTLV- 1 and 2, Hepatitis A, B, C of participants
B.C., Rothon (73) Inmates, 1994	B.C Young offenders aged 12-19 years who self-identified as Aboriginal Juvenile correctional centres	voluntary unlinked	Unk	94/01-94/04	F 46 M 160	None of male and female Aboriginal were HIV positive	• Young Aboriginal youth (12-15 years old) were five times more likely to have engaged in IDU than young non-Aboriginal youth. • Aboriginal youth were more than twice as likely as non-Aboriginal youth to report same gender sex (3.4% vs 1.4%).

TYPE OF STUDY 4. STUDIES IN ABORIGINAL PEOPLES							
Study Name, Investigator	**Population Sites**	**Sampling**	**Refusal**	**Year**	**N**	**Main HIV Prev./ Inc. Result**	**Comments**
B.C., Schechter (84) IDU, 1996-present	Vancouver Cohort of IDUs who self-identified as Aboriginal	convenience voluntary with informed consent (paid)	Unk	96/05-98/11	Aboriginals 300 Non-Aboriginals 825	Aboriginals 29.7% Non-Aboriginals 20.9%	• Factors associated with HIV infection among Aboriginal participants: ever borrowing needles (OR=1.91) and current on methadone treatment (OR=4.23). • Compared to non-Aboriginal participants, Aboriginal participants were more likely to be female (51% vs 28%, p<0.001) and to be HIV+ (30% vs 21%, p=0.002), less likely to be enrolled in methadone treatment (5% vs 14%, p<0.001).
					F/Aboriginals 152 F/Non-Aboriginals 238	F/Aboriginals 28.3% F/Non-Aboriginals 28.9%	
					M/Aboriginals 148 M/Non-Aboriginals 585	M/Aboriginals 31.1% M/Non-Aboriginals 17.6%	
B.C., Miller & Tyndall (84) IDU, 1995-present	Vancouver Open cohort of current IDU (<1 month prior) Participants aged 24 years or younger at enrollment	convenience voluntary with informed consent (paid)	median duration of follow-up 31.7 months	96/5-2001/01	Total youth 232	Total youth 17% Aboriginal youth 38% Non-Aboriginal youth 10%	• HIV-positive youth were more likely to be Aboriginal (38% vs 10%, p<0.001).
B.C., Hogg (81) MSM, 1995-present	Vancouver Cohort of IMSM who self-identified as Aboriginal	prospective cohort voluntary	lost to follow-up (denoting men >2 mons. late) 20%	95/05-98/05	Aboriginals 57 Non-Aboriginals 624	**Prevalence at enrollment** Aboriginals 3.5% Non-Aboriginals 1.4%	• Compared with non-Aboriginal MSM, Aboriginal MSM were significantly: * to have higher depression scores (p<0.01) * more likely to report non-consensual sex (p=0.03), sexual abuse during childhood (p=0.04), and having been paid for sex (p<0.01)
B.C., Martin (93) Aboriginal women, 1998-present	B.C. Status Indian women receiving prenatal care or therapeutic abortion	anonymous unlinked	Unk	2000/09-present		Results not yet available	
Alberta, Romanowski (77) STD, 1994-96	Alberta STD clinic clientele who self-identied as Aboriginal (1st Nations, Inuit, Metis)	anonymous unlinked	Unk	94/05-95/12	M 206 F 226 Total 432	Male Aboriginals 2.9% Female Aboriginals 1.3% Total Aboriginals 2.1%	• Prevalence for Aboriginal vs non-Aboriginal persons was significantly higher for women (1.3% vs 0.07%, p<0.001) but not for men (2.9% vs 2.4%). • The study has been completed.
Alberta, Guenter (91) IDU, 1998	Attendees of needle exchange programs in Calgary who self-identified as Aboriginal	voluntary convenience	Unk	98/06-98/09	Aboriginal 55 Non-Aboriginal 219	Aboriginals 1.8% Non-Aboriginals 4.7%	• Prevalence among Aboriginal IDU was based on one positive.

TYPE OF STUDY 4. STUDIES IN ABORIGINAL PEOPLES							
Study Name, Investigator	**Population Sites**	**Sampling**	**Refusal**	**Year**	**N**	**Main HIV Prev./ Inc. Result**	**Comments**
Alberta, Houston (100) Hospital, 1998	Edmonton Persons aged 15-54 years who had a blood count as part of care received at emergency departments of 2 largest hospitals serving urban populations	anonymous unlinked	None	98/06-98/07	Overall 3,057 Aboriginal 213 Non-Aboriginal 2,844	Overall 1.27% Results specific to Aboriginal persons were not available	• In multivariate logistic regression, HCV was associated with Aboriginal status (24% vs 5%, p<0.0001). • Aboriginal persons were likely to be under-recognized by the methods used in the study.
Saskatchewan, Horsman (66) Antenatal, 1995-96	Saskatchewan Women receiving prenatal care who are First Nations	100% sample anonymous unlinked	Unk	94/11-96/10		Results not yet available	• The study has been completed.
Saskatchewan, Vooght &Siushansian (92) IDU, 1998	Prince Albert IDUs (persons who had ever injected drugs), sexual partners of IDUs, and inmates of a local prison, who self-identified as Aboriginal Blood/urine samples	convenience voluntary	Unk	98/03-98/11	Aboriginal IDU 182 Non-Aboriginal IDU 17 Aboriginal sexual partners of IDU 44 Non-Aboriginal sexual partners of IDU 3	Aboriginal IDU 0.5% Non-Aboriginal IDU 5.9% Aboriginal sexual partners of IDU 0% Non-Aboriginal sexual partners of IDU 0%	• For more information, see Section 6.2- Studies in Injection Drug Users. • HIV prevalence results were estimated based on two positives. • The study has been completed.
Saskatchewan, Findlater (96) IDU, 2000	Regina IDUs (persons who had ever injected drugs) who self-identified as Aboriginal Blood/urine samples	convenience voluntary	Unk	2000	Aboriginal IDU 231 Non-Aboriginal IDU 24	Aboriginal IDU 1.7% Non-Aboriginal IDU 4.2%	• For more information, see Section 6.2- Studies in Injection Drug Users. • The study has been completed. • 90% of participant were Aboriginal. HIV prevalence result on non-Aboriginal IDUs was based on one positive.
Manitoba, Blanchard & Elliott (85) IDU, 1998	Winnipeg IDU recruited through multiple NEP, treatment programs, street contacts, community clinics with Aboriginal identifiers (Saliva testing)	voluntary	57% of individuals who self-reported ever injecting drugs participated	97/12-98/11	Aboriginals 403 Caucasians 179 Other 25	All Aboriginals 13.4% (10.2-17.5) Caucasians 12.3% (8.0-18.2) Other 4.0% (0.2-22.3)	• Of the Aboriginal IDUs, HIV prevalence among NEP users and non-NEP users are not significantly different (p=0.16). • There was no statistically significant difference in HIV prevalence by ethnicity.
					Aboriginal NEP users 138 Aboriginal non-NEP users 266	Aboriginal NEP users 9.9% (5.4-16.4) Aboriginal non-NEP users 15.1% (11.0-19.9)	
Ontario, Myers (29) Aboriginal, 1990	Ontario Adult Aboriginal people in 11 reserves in Ontario	voluntary randomly selected	13%	1990	Self Reported status 558 HIV tested 38	Of those reported having been HIV tested, 7.9% were positive	• Possible bias due to self-reported status • The study has been completed.

TYPE OF STUDY 4. STUDIES IN ABORIGINAL PEOPLES							
Study Name, Investigator	**Population Sites**	**Sampling**	**Refusal**	**Year**	**N**	**Main HIV Prev./ Inc. Result**	**Comments**
Ontario, Henning (82) Aboriginal, 1992-97	Sioux Lookout Zone First Nations residents Pregnant women and STD clients screened for VDRL	100% sample anonymous unlinked	Unk	92/04-97/05	Prenatals 776 M/STD clients 185 F/STD clients 178 Total 1,139	0.0% (0.0-0.3)	• The study has been completed.
Ontario, Millson (86) IDU, 1997-98	Ontario province-wide Attendees of needle exchange programs with Aboriginal identifiers	convenience voluntary	Unk	1997-98/08	Aboriginals 65 Non-Aboriginals 472	Aboriginals 7.7% Non-Aboriginals 7.6%	• The study has been completed. • The study also collects detailed risk behaviour information and self-reported Hepatitis B and C status.
Quebec, Roy (71) Street youth, 1994-present	Montreal street-involved youth who have one of their parent as Aboriginal person Prevalence study: youth aged between 13-25 years Incidence study: youth aged between 14-25 years	convenience voluntary anonymous	Impossible to compute, estimated to be zero	95/01-95/12	**Prevalence study**		• The prevalence study has been completed. • The cohort study began in January 1995 and is ongoing. It monitors HIV prevalence, incidence and risk behavioral changes over time.
					Aboriginals 71 Non-Aboriginals 804	Aboriginals 1.4% (0.1-7.6) Non-Aboriginals 2.0% (1.2-3.3)	
					Aboriginal/IDU 31 Aboriginal/non-IDU 40	Aboriginal/IDU 3.2% (0.1-16.8) Aboriginal/non-IDU 0%	
				95/01-2000/09	**Cohort study: Prevalence at enrollment**		
					Aboriginals 77 Non-Aboriginals 897	Aboriginals 2.6% (0.4-9.1) Non-Aboriginals 1.2% (0.7-2.2)	
					Aboriginal/IDUs 39 Aboriginal/non-IDUs 38	Aboriginal/IDUs 5.1% (0.7-17.4) Aboriginal/non-IDUs 0.0% (0.0-9.3)	

TYPE OF STUDY
5. STUDIES IN BLOOD / BLOOD PRODUCT RECIPIENTS
5.1 BLOOD / BLOOD PRODUCT RECIPIENTS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
B.C., Rekart (55) Lab, 1985-94	B.C. Blood/Blood product recipients	convenience voluntary	Unk	85/10-94/03	M 5,704 F 9,356 Total 15,666	Males 88 per 10,000 Females 41 per 10,000 Overall 57 per 10,000	
Manitoba, Schroeder (36) Blood, 1990-92	Manitoba Hospitalized patients who had Crossmatch testing prior to their transfusion	anonymous unlinked Duplicates removed Two one-year time frames	None	90/08-91/07	M 8,865 F 16,705	Males 24.8 per 10,000 Females 1.2 per 10,000	• 1990: 3 HIV+ males over 55 years old; the remaining males/females were between 15 & 49 years old.
				91/08-92/07	M 9,513 F 16,766	Males 31.5 per 10,000 Females 2.4 per 10,000	• 1991: 1 HIV+ female & 2 HIV+ males >55 years old; the remaining males/females were between 20-49 years old.
				90/08-92/07	Total 51,849 M 18,378 F 33,471	Overall rate 11.2 per 10,000 Males 28.0 per 10,000 Females 1.8 per 10,000	• Male patients accounted for 90% of positive tests even if they represented only 36% of the study population.
Ontario, Major (21) Lab, 1992-present	Ontario Blood product recipients Serodiagnostic testing	convenience voluntary	Unk	1992	3,578	0.42%	• Assignment of exposure category was mutually exclusive. • All duplicate positive tests have been removed from the numerator and denominator, but duplicate negative tests have been removed from the denominator within a calendar year only.
				1993	10,104	0.16%	
				1994	9,689	0.08%	
				1995	5,311	0.17%	
				1996	3,489	0.17%	
				1997	1,814	0.27%	
				1998	1,516	0.13%	
				1992-98	37,163	0.2%	
	Ontario Blood transfusion recipients Serodiagnostic testing	convenience voluntary	Unk	1992	1,675	0.54%	• Assignment of exposure category was mutually exclusive. • All duplicate positive tests have been removed from the numerator and denominator, but duplicate negative tests have been removed from the denominator within a calendar year only.
				1993	14,564	0.09%	
				1994	16,746	0.07%	
				1995	8,313	0.11%	
				1996	4,872	0.14%	
				1997	2,622	0.26%	
				1998	2,778	0.25%	
				1992-98	52,569	0.1%	

TYPE OF STUDY 5. STUDIES IN BLOOD / BLOOD PRODUCT RECIPIENTS 5.2 HEMOPHILIACS							
Study Name, Investigator	**Population Sites**	**Sampling**	**Refusal**	**Year**	**N**	**Main HIV Prev./ Inc. Result**	**Comments**
National, Poon (38) Blood, 1988-92	Calgary Montreal Vancouver Saskatchewan Edmonton Hemophiliacs	convenience voluntary (female spouses /sexual partners of male hemophiliacs)	Unk	1988	55	Spouses: 7% positive on enrollment No seroconversion during 2.5 years follow-up	• 1 seroconversion after the study ended.
National, Blanchette (37) Hemophilia, 1988-91	Hemophiliac children attending comprehensive care hemophiliac clinics in 18 cities in provinces across Canada	convenience voluntary	Unk	1988	547	25% positive	• The study has been completed.

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.1 MEN WHO HAVE SEX WITH MEN (MSM)

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
B.C., Schechter (40) MSM, 1984-present	Vancouver Primary care clinics (Vancouver Lymphadenopathy AIDS Study) Semi-annual visits through 86/10 then annual	cohort voluntary	varied 20-50% mean length of follow-up 7 years		**Prevalence at enrollment**		• Possible biases: volunteer bias, selection bias, aging, the Hawthorn effect, obsequiousness, and survival biases. • Rates of annual seroconversion were done based on actuarial estimates (conditional probability were not cumulative incidence rates). • Annual rates of HIV-1 seroconversion were highest during 1983-86 and decreased significantly thereafter. Despite the closed cohort effect, these rates have remained at 1-2% during 1990-95 suggesting a possible towards relapse to unsafe sexual practice.
				Cohort 82/11-84/12	729	32%	
				Cohort 86/10-87/12	271	71%	
					Incidence		
				82/12-96	478 initial seronegative	141 seroconverted	
				1983		6.8%	
				1984		11.5%	
				1985		6.5%	
				1986		4.9%	
				1987		2.8%	
				1988		2.2%	
				1989		2.0%	
				1990		1.0%	
				1991		0.6%	
				1992		0.6%	
				1993		0.6%	
				1994		1.4%	
				1995		0.8%	
				1996		0.0%	
				1982-96		cumulative incidence rate 41.7%	
B.C., Rekart (32) Street people, 1988-92	Vancouver street-involved persons with MSM as a risk	convenience voluntary	Unk	1988	19	15.4%	• Possible selection bias
				1989	128	18.0%	
				1990	46	32.6%	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.1 MEN WHO HAVE SEX WITH MEN (MSM)

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
				1991	85	8.2%	
				1992	57	10.5%	
	Vancouver street-involved persons with bisexual behaviour as a risk factor	convenience voluntary	Unk	1988	142	6.5%	• Possible selection bias • Increasing seropositivity among bisexuals from 1989-92.
				1989	75	5.3%	
				1990	49	6.1%	
				1991	61	8.2%	
				1992	43	11.6%	
B.C., Hogg & Martindale (81) MSM, 1995-present	Vancouver Cohort of HIV negative MSM at enrollment aged 15-30 recruited through publicity, medical clinics, community outreach, physicians Participants complete an annual self-administered questionnnaire	prospective cohort voluntary	Lost to follow-up (denoting men > 2 months late) 20%	95/05-99	**Prevalence at enrollment**		• The study is ongoing. • Participants were not knowingly HIV+ at baseline • Data indicate a recent increase in the rate of new HIV infections in young gay and bisexual men in the Vancouver area, in particular among non-IDU/MSM (five-fold increase in infection rates over the past year) .
					830	2.3% (1.4-3.6)	
					Incidence density (rate per 100 PY)		
				1995/05-2000/12	Overall 668 MSM MSM/IDU	25 seroconverted at follow-up Overall 1.3 MSM only 0.9 (0.5-1.4) MSM/IDU 3.9 (1.0-6.8)	
				1995-99		MSM only 0.6 (0.2-1.0)	
				2000		MSM only 3.2 (0.6-5.8)	
B.C., Barthokomew (94) MSM, 1998	West End of Vancouver Male population older than 20 years of age self-identified as gay or bisexual, Self-reported HIV status	random-digit telephone survey	61% refusal	98/04-98/07	300	15.7%	• HIV prevalence is limited to those who know their HIV status. • Only individuals of a certain socio-economic status were reached by the study. Street youth, IDUs, Aboriginal people were likely under-represented.
Alberta, Honish (43) MSM, 1989	Edmonton	convenience voluntary	Unk	1989	205	22%	• HIV status based on self-report
Alberta, Romanowski (77) STD, 1994-95	Edmonton, Calgary STD clinics Leftover sera submitted for VDRL, Hepatitis B, HIV testing which recorded MSM as the main risk factor	anonymous unlinked	M 29% F 24.6%	94/05-95/05	466	12.0%	• The study also collected risk behaviour information. • The study has been completed.

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.1 MEN WHO HAVE SEX WITH MEN (MSM)

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Manitoba, Hammond (31) STD, 1986-90	Winnipeg STD Community Clinics STD Outpatient Clinics	convenience voluntary	Unk	86/06-90/03	2,359	Homo-Bi / IDU 14.1% Homo-Bi 8.8% Overall 9%	• Possible selection bias
Manitoba, Myers (70) MSM, 1994-95	Winnipeg MSM recruited through gay organizations, bars, bathhouse (Saliva test option)	voluntary anonumous	13.2%	95/01-95/02	Qustionnaire 488 Provided saliva 399 HIV self-reported 298	Provided saliva sample 7.01% (4.8-10.1) HIV self-reported status 9.1% (6.2-13.0)	• About 72% of interviewed men reported they had been tested for HIV antibody. • Positivity rate in self-reported result was comparable to laboratory result.
Ontario, Coates (41) MSM, 1984-92	Toronto Physicians	prospective cohort voluntary	52% lost to f/u after 5 years		**Prevalence at enrollment**		• Eligibility limited to men who had had a sexual contact with an HIV infected partner.
				1984-85	249	57%	
					Incidence		
				1985		7.4%	
				1986		6.3%	
				1987		4.3%	
				1988-91		0%	
Ontario, Major (21) Lab, 1992-present	Ontario Serodiagnostic testing for people with MSM as a risk factor	convenience voluntary	Unk	1992	7,775	7.3%	• Assignment of exposure category was mutually exclusive. • All duplicate positive tests have been removed from the numerator and denominator, but duplicate negative tests have been removed from the denominator within a calendar year only.
				1993	7,933	5.7%	
				1994	7,497	4.6%	
				1995	8,111	4.4%	
				1996	8,224	3.8%	
				1997	7,778	3.2%	
				1998	7,456	3.2%	
				1999	7,206	3.3%	
				1992-99	61,980	4.4%	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.1 MEN WHO HAVE SEX WITH MEN (MSM)

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Ontario, Remis (106) Lab, 1999-present	Ontario First-time HIV diagnoses detected by the Ontario Laboratory Diagnostic with MSM recorded in the requisition/ supplementary questionnaire as a risk factor	N/A		1999/10-2000/12	13,579 PY	**Incidence density** 2.6 per 100 PY	• Incidence is calculated by using a new laboratory technique (Detuned Assay) to detect infections occurring within four months prior to testing among new HIV diagnoses. • Measured incidence may be overestimated due to biases associated with testing.
Ontario, Calzavara (107) Lab, 1992-present	Ontario Repeat testers for HIV **Median inter-test interval** 1.3 years for positives 2.0 years for negatives **Risk factor information available for** 79% of positives 57% of negatives	N/A			**Incidence density (Rate per 100 PY)**		• Seroconversions are documented when individuals with previous HIV negative serology test subsequently HIV positive or have indeterminate results. • Incidence density is calculated by the number of incident cases of HIV during the interval divided by the number of person-years of observation during the interval. • Rate of new HIV infections in Ontario has increased among MSM since 1996. • Measured incidence may be overestimated due to biases associated with testing.
				1992-99	27,838 PY	1.11	
				1992		1.50	
				1993		1.42	
				1994		1.22	
				1995		1.01	
				1996		0.87	
				1997		1.23	
				1998		1.35	
				1999		2.07	
Ontario, Myers (89) Bisexual men, 1996	Ontario province wide MSM who had sex with at least one woman in the previous 5 years recruited to call a 1-800 toll free line to answer an interview of one hour	convenience voluntary	N/A	1996	1,314	Self-reported HIV-positive Among tested 1.12% (0.49-2.42) Among total sample 0.53% (0.23-1.14)	• 55.8% of the sample reported being tested for HIV. Higher rates of HIV testing were associated with: being single, having post-secondary education, having unsafe sex in the past year with a casual partner, sex with a male partner in the past year, ever visiting a bathhouse, and attending a gay bar.
Quebec, Remis (42) MSM, 1988-89	Montreal clinic	random sample voluntary	none		**Prevalence at enrollment**		• Possible selection bias
				1988	84	25.0%	
				1989	204	24.0%	
					Incidence		
				1989		3.5%	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.1 MEN WHO HAVE SEX WITH MEN (MSM)

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Quebec, Alary (47) Physician, 1988-91	Selected clinics in: Montreal, Quebec City, Sherbrooke Self-referrals for HIV testing	convenience voluntary	0.1	1988-91	2,832	17.7% (16.3-19.1)	• Possible selection bias
				1988	733	15.7% (13.1-18.5)	
				1989	1,434	17.0% (15.1-19.1)	
				1990	1,016	16.4% (14.2-18.9)	
Quebec, Alary (74) Inmates, 1994	Inmates admitted to a provincial prison with MSM as a risk factor	voluntary convenience	5%	1994	52	9.6% (1.6-17.6)	• The study has been completed.
Quebec, Roy (71) Street, 1994-present	Montreal Male street-involved youth aged 13-25 who reported having sex with men	voluntary convenience anonymous (paid)	impossible to compute, estimated to be zero	95/01-95/12	MSM 122 Non-MSM 527 MSM/non-prostitute 32	MSM 4.9% (2.0-9.9) Non-MSM 1.5% (0.7-3.1) MSM/Non-prostitute No one were HIV positive	• The 2nd phase of the study started in December 1995 as a cohort study that monitors behavioural changes over time. • Five of the six positive MSM were IDU.
Quebec, Alary, Remis & Otis (83) MSM, 1996-present	Montreal Cohort of HIV negative or unknown status at enrollment, recruited via MSM community	convenience voluntary	F/U annual rate is about 90%		**Prevalence at enrollment**		• The low observed HIV prevalence is difficult to interpret because only subjects presumed HIV-negative are recruited. • The estimated observed incidence is compatible with estimates obtained from mathematical models for the MSM population in Montreal. • Risk factors associated with HIV incidence were: - unprotected anal sex with a partner other than HIV-negative (OR=6.8, p=0.0004) - unprotected oral sex with an HIV-positive regular or casual partner or client (OR=10.4, p=0.01) - drug use (OR=6.5, p=0.001) - six or more casual partners (OR=4.1, p=0.01) - having received money for sex (OR=7.9, p=0.01). • HIV prevalence increased with age: from 0.0% for those <20 years to 3.1% for those aged 40-44 years and was 0.4% among those >45 years. • HIV prevalence was higher among those without university education (RR=2.8, p=0.05) and those with >50 casual partners (RR=2.9, p=0.02). • HIV incidence decreased over the four-year period and was higher among those <30 years. However, this trend was not statistically significant
				96/10-2001/02	1,588	1.6% (1.0-2.2)	
					Incidence density (rate per 100 PY)		
				96/10-2001/02	Overall 3,027 PY	17 seroconverted at follow up Overall 0.56 (0.29-1.83)	
					For <30 years		
				1997	146 PY	0.54 (0.0-1.7)	
				1998	239 PY	1.5 (0.0-3.0)	
				1999	293 PY	1.3 (0.1-2.7)	
				2000-2001/02	262 PY	0.32 (0.0-1.0)	
				96/10-2000/02	939 PY	0.96 (0.33-1.6)	
					For ≥ 30 years		
				1997	392 PY	0.83 (0.00-1.7)	
				1998	509 PY	0.27 (0.00-0.73)	
				1999	617 PY	0.22 (0.00-0.59)	
				2000-2001/02	567 PY	0.35 (0.00-0.84)	
				96/10-2001/02	2,087 PY	0.38 (0.12-0.65)	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.1 MEN WHO HAVE SEX WITH MEN (MSM)

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Quebec, Dumas (103) MSM, 2000	Montreal MSM recruited from bars, cafes, saunas, sportive organizations, associations of university students, community organizations serving HIV+ ** excluding bisexuals or those living outside Montreal	convenience voluntary	None	99/11-2000/01	Total 605 Ever tested for HIV 453	Self-reported HIV status 15.1%	
Quebec, Lavoie (104) MSM, 2000	Montreal MSM recruited from bars, cafes, saunas, sportive/recreational organizations	convenience voluntary	None	99/11-2000/01	Total 500 Ever tested for HIV 374	Self-reported HIV status 9.6%	
Nova Scotia, Embril (14) STD, 1981-86	Halifax STD Clinic patients (stored sera collected routinely for syphilis)	unlinked anonymous	None	1981-86	199	0.11%	• History of syphilis among men < 30 years old: OR=18.2 (5.1 - 64.7) • History of gonorrhea among men < 30 years old: OR=8.2 (4.2 - 16.0) • The study has been completed.
				1981	37	0.08%	
				1982	33	0.12%	
				1983	45	0.11%	
				1984	39	0.10%	
				1985	24	0.17%	
				1986	21	0.09%	
Nova Scotia, Haase (20) STD, 1992-94	Halifax Attendees at STD clinic	unlinked anonymous	None	1992-94	125	0.8%	• Result was based on one positive test from a homosexual male with a history of gonorrhea and anal sex. The study has been completed.
National, Myers (61) MSM, 1988-92	35 cities across Canada regrouped into 7 regions: - Vancouver (VCR) - B.C. except Vancouver & Prairies including Alberta, Manitoba, Saskatchewan (BCP) - Ontario except Toronto (ONT) - Toronto (TOR) - Quebec except Montreal (QUE) - Montreal (MTL) - Atlantic Provinces (ATL) Survey of men in bars, bath houses, community dances	convenience voluntary	14.0%, 6.2% non response on sexual behaviour questionnaire 4.2% non response on HIV testing question	91/10-92/02	Ever been tested for HIV	Of those who had ever been tested, prevalence were:	• National: 65% of men reported that they had been tested for HIV antibody. Of these, 50 had unknown results. • Regional variation: highest % of men not tested for HIV antibody was observed in the Atlantic regions. Of those who had been tested, highest prevalence rate was found in Toronto, Montreal, Vancouver. • The study has been completed.
					Nat. 2,856	Nat. 18.2% (16.8-19.6)	
					VCR 496	VCR 23.0% (19.3-26.7)	
					BCP 433	BCP 11.8% (8.8-14.8)	
					ONT 408	ONT 10.2% (7.3-13.1)	
					TOR 426	TOR 27.2% (23.0-31.4)	
					QUE 302	QUE 20.5% (16.7-24.3)	
					MTL 444	MTL 20.1% (15.6-24.6)	
					ATL 348	ATL 16.0% (12.1-19.9)	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.2 MEN WHC HAVE SEX WITH MEN/INJECTION DRUG USERS (MSM/IDU)

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
B.C., Hogg & Martindale (81) MSM, 1995-present	Vancouver Cohort of HIV negative MSM at enrollment aged 15-30 recruited through publicity, medical clinics, community outreach, or physicians Participants complete an annual self-administered questionnaire	prospective cohort voluntary	Lost to follow-up (denoting men > 2 months late) 20%	1996/05-2000/12	**Prevalence at baseline**		• The study is ongoing. • See also Table 6.1 for more inforrmation.
					Total 910 MSM/IDU 106 non-IDU/MSM 804	MSM/IDU 8.5% non-IDU/MSM 2.0%	
				1996/05-2000/12	**Incidence density (rate per 100 PY)**		
					MSM/IDU non-IDU/MSM	MSM/IDU 5.71 non-IDU/MSM 1.00	
Alberta, Romanowski (77) STD, 1994-95	Edmonton, Calgary STD clinics Leftover sera submitted for VDRL, Hepatitis B, HIV testing which had MSM as the only risk factor	anonymous unlinked	M 29% F 24.6%	94/05-95/05	58	22.4%	• The study also collected risk behaviour information. • The study has been completed.
Ontario, Major (22) Lab, 1992-present	Ontario Serodiagnostic testing for people with MSM/IDU as a risk factor	convenience voluntary	Unk	1992	263	8.0%	• Assignment of exposure category was mutually exclusive. • All duplicate positive tests have been removed from the numerator and denominator, but duplicate negative tests have been removed from the denominator within a calendar year only.
				1993	356	7.3%	
				1994	339	5.9%	
				1995	355	3.4%	
				1996	297	3.4%	
				1997	292	3.4%	
				1998	329	2.4%	
				1999	329	2.4%	
				1992-99	2,585	4.8%	
Ontario, Millson (30) WHO IDU, 1991-94	Toronto Treatment Non-treatment with MSM/IDU as a risk factor	convenience voluntary	Unk	1991-92 1992-93 1993-94	MSM/IDU 47 37 64	MSM/IDU 25.5% 28.6% 23.0%	• MSM/IDU were at significantly higher risk for HIV infection than other male IDU/not MSM.
				1991-92 1992-93 1993-94	Not MSM/IDU 325 343 350	Not MSM/Male IDU 2.9% 2.7% 4.8%	

TYPE OF STUDY 6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS 6.2 MEN WHO HAVE SEX WITH MEN/INJECTION DRUG USERS (MSM/IDU)							
Study Name, Investigator	**Population Sites**	**Sampling**	**Refusal**	**Year**	**N**	**Main HIV Prev./ Inc. Result**	**Comments**
Ontario, Remis (106) Lab, 1999-present	Ontario First-time HIV diagnoses detected by the Ontario Laboratory Diagnostic with MSM/IDU recorded in the requisition/supplementary questionnaire as a risk factor	N/A		1999/10-2000/12	MSM/IDU 711 PY	Incidence density MSM/IDU 2.8 per 100 PY	• Incidence is calculated by using a new laboratory technique (Detuned Assay) to detect infections occurring within four months prior to testing among new HIV diagnoses. • Measured incidence may be overestimated due to biases associated with testing.
Quebec, Hankins & Alary (22) IDU, 1994-present	Quebec province-wide & Ottawa Male current IDU who attended NEP & reported having sex with men	voluntary convenience (paid)	Unk	1994/10-2000/12	MSM/IDU 747 Hetero/IDU 3,824	MSM/IDU 21.9% (19.0-24.9) Hetero/IDU 14.2% (13.1-15.3)	• The study is ongoing. • Difference between MSM/IDU and Hetero/IDU was statistically significant (p<0.0001).
Quebec, Poulin & Alary (68) IDU, 1994-present	Quebec City Male current IDU who attended NEP & reported having sex with men 97/02-97/04: participants screened for Chlamydia and Gonorrhea (urine)	voluntary convenience (paid)	Unk	1994/10-1996/11	MSM/IDU 266 Non-MSM/IDU 482	MSM/IDU 16.2% (12.0-21.1) Non-MSM/IDU 4.6% (2.9-6.8)	• The study is now part of the Quebec SurIDU Surveillance Network (see Alary (22)).
				1997/02-1997/04	MSM/IDU 103 Non-MSM/IDU 148	MSM/IDU 13.6% (7.6-21.8) Non-MSM/IDU 4.1% (1.5-8.6)	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.3 INJECTION DRUG USERS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
B.C., Rekart (32) Street, 1988-92	Vancouver Street involved persons with IDU as a risk factor	convenience voluntary	Unk	1988	268	3.8%	• MSM was an important overlapping risk
				1989	767	2.7%	
				1990	326	5.6%	
				1991	314	3.5%	
				1992	276	4.2%	
				1988-92	1,839	3.7%	
B.C., Mathias (29) IDU, 1991-93	Vancouver, Victoria Needle exchange users Incidence study: subjects were paid to return every 3 months for follow up questionnaire and serologic testing.	convenience voluntary		1992-93	**Prevalence at enrollment**		• Having same sex partners was significantly associated with HIV positivity. • Converters had more same sex partners and more sex for money partners than non-converters. • The study has been completed.
					Total 511 M 379 F 126 Trans-sexuals 6	Overall 4.7% Males 4.5% Females 3.2% Trans-sexuels 50%	
				1992-93	**Incidence**		
					322	17 seroconverted. Overall incidence 5.3%	
B.C. Rothon (17) Inmates, 1992	British Columbia Adult inmates in provincial correctional centres with IDU as a risk factor	unlinked voluntary	IDU 12.9% Non-IDU 6.8%	92/10-92/12	IDU admitted 854 IDU saliva tested 743	Results expressed as a % of those admitted, not % of those tested: IDU 2.1%	• Higher refusal rate of HIV testing among IDU. • The study has been completed.
B.C., Rekart & Patrick (55) Lab, 1985-present	British Columbia Patients seen at HIV testing clinics or by physicians for serodiagnostic testing who had IDU as their only risk factor	convenience voluntary	Unk	1985	35	2.9%	• Notable increase in prevalence among IDUs 1992-97
				1986	111	2.3%	
				1987	1,000	0.9%	
				1988	1,648	0.9%	
				1989	2,500	1.8%	
				1990	2,556	2.2%	
				1991	3,314	1.7%	
				1992	4,129	2.6%	
				1993	4,346	3.3%	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.3 INJECTION DRUG USERS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
				1994	4,712	4.0%	
				1995	5,389	4.9%	
				1996	5,663	5.5%	
				1997	3,421	6.5%	
				1998 (6 mos.)	1,645	4.9%	
				1993-98	40,498	3.6%	
B.C., Schechter & Tyndall (84) IDU, 1995-present	Vancouver Open cohort of current IDU (<1 month prior) HIV testing with pre-/post-test counselling Semi-annual follow-up	convenience voluntary with informed consent (paid)	median duration of follow-up 31.7 months		**Baseline prevalence**		• The study is ongoing. • The study also collects risk behaviour information and evaluates the incidence/prevalene of HCV, impact of preventive interventions (NEP attendance, methadone maintenance, drug/alcohol treatment programs, counseling services) on risk behaviors of IDU. • Higher incidence rate in the 1st period than in the other periods could be explained by the saturation effect (i.e., high-risk people were already infected). • Seroconversion rate was higher among females than males (17% vs 11%, p=0.057). • Incidence of HIV has declined since 1997, from 10.3 per 100 PY in 1997 to 2.5 in 1998, 3.2 in 1999, and 1.5 in 2000.
				96/5-2001/01	Total 1,437 Males 932 Females 505	Total 29.1% Males 25.8% Females 35.2%	
					Incidence density (Rate per 100 PY)		
				96/12-2001/01	2,414.4 PY	110 seroconverted 4.5	
				96/12-97/05	238.25 PY	19.4	
				97/06-97/11	267.18 PY	6.0	
				97/12-98/05	325.96PY	2.5	
				98/06-98/11	348.76 PY	2.6	
				98/12-99/05	325.71 PY	3.4	
				99/06-99/11	341.86 PY	2.9	
				99/12-2000/05	344.86 PY	1.2	
				2000/06-2001/01	388.43 PY	1.8	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.3 INJECTION DRUG USERS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Alberta, Abernathy (27) IDU, 1991-93	Calgary Attendees & non-attendees of the needle exchange program	convenience voluntary	6%	1991-93	Total sample 306 Saliva tested 285 Non-tested 21	Overall: 1.96% Saliva tested: 1.75% Non-tested: 1 self-reported HIV (+)	• Selection & volunteer bias • Participants paid for samples • Infected individuals had high risk behaviours: needle sharing, homo/paid for sex/multiple partners, unsafe sex • The study has been completed.
Alberta, Calder (101) IDU, 1997	Edmonton Clients of fixed and mobile needle exchange program Saliva	convenience voluntary	Unk	1997	100	7%	• Two thirds of participants were Aboriginal.
Alberta, Guenter (91) IDU, 1998	Calgary Attendees of needle exchange programs who injected in last 3 months (saliva testing)	convenience voluntary		98/06-98/09	Total sample 278 Saliva tested 272 Not adquate saliva sample for HIV testing 6	3.3% (1.6-6.4)	• Compared to male participants, female participants were younger, more likely to be involved in prostitution, less likely to travel outside Calgary. • Compared to older participants (>25 years old), younger participants were more likely to use cocaine and more likely to be sexually active. • The study has been completed.
Alberta, Romanowski (77) STD, 1994-95	Edmonton, Calgary STD clinics Leftover sera submitted for VDRL, HBV, HIV testing	anonymous unlinked	M 29% F 24.6%	94/05-95/05	401	5.0%	• The study has been completed. • The study also collected risk behaviour information.
Saskatchewan, Vooght & Siushansian (92) IDU, 1998	Prince Albert IDUs (persons who had ever injected drugs), sexual partners of IDUs, and local correctional centre inmates Blood/urine samples	convenience voluntary	Unk	98/03-98/11	Total 246 IDUs 199 Sexual partners of IDUs 47	Overall 0.8% IDUs 1.0% Sexual partners of IDUs 0.0%	• The study also measures prevalence of Hepatitis A, B, C, Gonorrhea, Chlamydia, Syphilis as well as collects detailed risk behavior information. • The study has been completed
Saskatchewan, Findlater (96) IDU, 2000	Regina IDUs who have had injected drugs in the last six months	voluntary convenience	Unk	2000	Total 255 **Ever tested for HIV** NEP attenders 179 Non-NEP attenders 53	Total 1.96% NEP attenders 2.2% Non-NEP attenders 1.9%	• The study also measures prevalence of Hepatitis A, bloodborne pathgens, gonorrhea, chlamydia, and collects detailed risk behavior information.
Manitoba, Hammond (31) STD, 1986-90	STD Community Clinics STD Outpatient Clinics	convenience voluntary	Unk	86/06-90/03	131	2.3% (0.5-6.7)	• The study has been completed.

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.3 INJECTION DRUG USERS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Manitoba, Sekla (5) Sentinel lab, 1990-91	STD patients with IDU as a risk factor	anonymous unlinked	<1%	90/04-91/09	Total 83 Males 52 Females 31	None tested positive None tested positive None tested positive	• The study has been completed.
Manitoba, Campbell (34) Street, 1990-92	Winnipeg Recipients & Non-recipients of Street Links' services including sex trade workers, IDU, street youth (saliva testing)	convenience voluntary	5.6%	91/05-92/07	168	1.2%	• The study has been completed.
Manitoba, Blanchard & Elliott (85) IDU, 1997-1998	Winnipeg IDU recruited through multiple NEP, treatment programs, street contacts, community clinics (saliva testing)	voluntary	57% of individuals who self-reported ever injecting drugs participated	97/12-98/11	Total 609 Males 336 Females 269	Overall 12.6% (10.2-15.6) Males 15.2% (11.5-19.5) Females 9.0% (5.8-13.0)	• The study has been completed. It also collected detailed risk behavior information • Factors associated with HIV prevalence were: * Age 25-29 years (OR=3.3, p=0.03) * Being male (OR=2.4, p=0.004) * Ever shared rigs (OR=2.7, p=0.006) * Cocaine injection (OR=2.2, p=0.01) * Sex trade (OR=3.0, p=0.008) * Men who have sex with men (OR=5.1, p=0.001)
					NEP users 168 Non-NEP users 445	NEP users 9.1% (5.2-14.6) Non-NEP users 13.9% (10.9-17.5)	
Ontario, Major (21) Lab, 1992-present	Ontario Serodiagnostic testing with IDU as a risk factor	convenience voluntary	Unk	1992	5,117	1.7%	• Assignment of exposure category was mutually exclusive. • All duplicate positive tests have been removed from the denominator and numerator, but duplicate negative tests have been removed from the denominator within a calendar year only.
				1993	5,569	1.1%	
				1994	4,837	1.8%	
				1995	5,207	1.4%	
				1996	5,403	1.3%	
				1997	5,152	1.0%	
				1998	5,342	1.0%	
				1999	5,107	1.3%	
				1992-99	41,734	1.3%	
Ontario, Coates (Millson) (24) IDU, 1988-90	Toronto Treatment	convenience voluntary	30-70%	1988	177	0%	• Rates are lower in Toronto compared with Montreal (see Lamothe (58))
				1989	202	2% (0.03-2.39)	
Ontario, Millson (25) IDU, 1989-92	Toronto Non-treatment	convenience voluntary (Paid)	Unk (could be high)	89/11-90/10	582	4.3% (3.0-6.0)	• Significant decline in needle sharing with relative stability of HIV prevalence over 2 years
				91/05-92/04	342	5.7% (4.0-10.0)	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.3 INJECTION DRUG USERS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Ontario, Millson (30) WHO IDU, 1991-94	Toronto Treatment Non-treatment	convenience voluntary	15%	91/05-92/04	Treatment: 137 Non-treat.: 342	Treatment: 1.5% (0.2-6.0) Non-treatment: 5.7% (4.0-10.0)	• Overall HIV prevalence was significantly lower ($p<0.05$) among those in treatment but became non-significant when controlling for gender ($p=0.18$ for males). • IDU entering treatment continue to exibit high risk behaviour for acquisition of HIV (using unsafe needle in the preceding 6 months).
				92/05-93/04	Treatment: 145 Non-treat.: 344	Treatment: 4.1% (1.7-9.0) Non-treatment: 4.8% (3.0-8.0)	
				93/05-94/04	Treatment: 129 Non-treat.: 370	Treatment: 3.9% (0.5-7.3) Non-treatment: 9.0% (6.0-12.0)	
Ontario, Baskerville (28) IDU, 1991-93	Attenders & Non-attenders of the Ottawa Needle Exchange Program	convenience voluntary	3.9%	1992-93	**Unadjusted**		• Results on sample size adjusted to increase the total number of valid samples. This was achieved by: * reducing the total number of results reported as insufficient quantity to test; * reducing the total number of missing samples. • The study has been completed.
					Attenders 230 Non-attenders 405 Overall 635	Attenders 10.3% (6.1-14.5) Non-attenders 6.9% (4.3-9.5) Overall 8.1% (5.8-10.4)	
					Adjusted		
					Attenders 214 Non-attenders 366 Overall 580 Females 79	Attenders 11.2% (7.0-15.4) Non-attenders 6.8% (4.2-9.4) Overall 8.4% (6.1-10.7) 6.9% (1.0-12.8)	
Ontario, Leonard (99) IDU, 1996-97	Active IDUs (who injected in last 6 months) recruited from the Ottawa Needle Exchange Program	convenience voluntary	None	96/06-9903	**Prevalence**		• This study is now part of the Quebec Surveillance Network (see Alary (22)). • Difference in HIV prevalence between: * those injecting more than two years and those injecting less than two years was statistically significant ($p=0.01$) * those currently sharing needles and those not sharing needles was significant ($p=0.03$)
					Total 721 Males 536 Females 185	Overall 18.7% Males 19.0% Females 17.8%	
					Needle sharing 86 No needle sharing 144	Needle sharing 32.6% No needle sharing 19.4%	
					<2 years of IDU 52 >2 years of IDU 661	<2 years of IDU 5.8% >2 years of IDU 20.0%	
				96/06-97/03	250	19.2% (14.5-24.6)	
				97/06-98/03	304	17.4% (13.3-22.2)	
				98/06-99/03	167	20.4% (14.5-27.3)	
				99/06-97/03	**Incidence**		
					50	12.2% (2.2-22.2)	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.3 INJECTION DRUG USERS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Ontario, Calzavara (53) Inmates, 1992-93	Adult inmates in 42 Ontario jails & detention centres with IDU risk factor	anonymous unlinked	Unk	93/02-93/08	Adult Males 1,184	Adult males 3.6% (2.5-4.7)	• Using urine samples from inmates for HIV testing • Highest HIV rate for male IDU was in Metro 6.5% (4.2-8.8) for female IDU was in Central Region 12.5% (1.0-24.0)
					Adult Females 262	Adult females 4.2% (1.7-6.6)	
					Young Offenders 41	Young Offenders 0.0% (0.0-7.1)	
Ontario, Millson (86) IDU, 1997-98	Ontario province-wide Needle exchange programs (saliva and finger-prick blood specimens)	convenience voluntary (paid)	Unk	97/02-98/08	Total 522 Males 397 Females 125	Overall 6.9% Males 6.0% Females 9.6%	• The study also collects risk behaviours related to bloodborne pathogens and information on HIV testing behavior. • Factors associated with HIV infection were: duration of injection >5 years (OR=11.3, p=0.003), any cocaine use (OR=4.8, p=0.008), always condom use (OR=2.9, p=0.009).
					Toronto & Durham 172	Toronto & Durham 8.3%	
					Hamilton & Niagara 115	Hamilton & Niagara 2.6%	
					London & Windsor 72	London & Windsor 4.2%	
					Kingston 68	Kingston 1.5%	
					Sudbury & Thunder Bay 95	Sudbury & Thunder Bay 14.6%	
Ontario, Remis (106) Lab, 1999-present	Ontario First-time HIV diagnoses with IDU recorded in the requisition/ supplementary questionnaire as a risk factor			1999/10-2000/12	13,579 PY	**Incidence density** 2.6 per 100 PY	• Incidence is calculated by using a new laboratory technique (Detuned Assay) to detect infections occurring within four months prior to testing among new HIV diagnoses. • Measured incidence may be overestimated due to biases associated with testing.
Ontario, Calzavara (107) Lab, 1992-present	Ontario Repeat testers for HIV **Median inter-test interval** 1.3 years for positives 2.0 years for negatives **Risk factor information available for** 79% of positives 57% of negatives	N/A			**Incidence density (Rate per 100 PY)**		• Seroconversions are documented when individuals with previous HIV negative serology test subsequently HIV positive or have indeterminate results. • Incidence density is calculated by the number of incident cases of HIV during the interval divided by the number of person-years of observation during the interval. • Rate of new HIV infections in Ontario has increased among IDU since 1997. • Measured incidence may be overestimated due to biases associated with testing.
				1992-99	25,876 PY	0.35	
				1992		0.57	
				1993		0.45	
				1994		0.65	
				1995		0.37	
				1996		0.26	
				1997		0.26	
				1998		0.44	
				1999		0.65	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.3 INJECTION DRUG USERS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Quebec, Alary (47) IDU, 1988-91	Sentinel physician Persons presenting for HIV testing with IDU risk factor	convenience voluntary	10%	1988	55	3.6% (0.4-12.5)	• History of IDU was an important risk for HIV • Over a 3 year period, there was a large increase in HIV prevalence among IDU: from 3.6% in 1988 to 24.2% in 1990, p=0.004. • The study has been completed.
				1989	160	21.3% (15.2-28.4)	
				1990	128	24.2% (17.1-32.6)	
Quebec, Hankins (52) Inmates, 1988-1991	Quebec Incarcerated men and women in provincial prisons with IDU as their risk factor	convenience voluntary	Unk	1988-89	F/IDU 192	F/IDU 13.0% (8.6-18.6)	• Significant difference between IDU and non-IDU among both males and females (p<0.001) • Among females, history of STDs was common • All but one of the infected females were IDU • The study has been completed.
				1990-91	M/IDU 237	M/IDU 7.6% (4.6-11.7)	
Quebec, Alary (74) Inmates, 1994	Inmates admitted to a provincial prison (sentence of less than two years) who were IDU	voluntary anonymous	5%	1994	M/IDU 129	M/IDU 8.5% (4.7-13.3)	• The study has been completed.
					M/IDU needle-sharing 63	M/IDU needle sharing 14.3% (5.7-22.9)	
					M/IDU non-needle-sharing 66	M/IDU non-needle-sharing 3.0% (0-7.1)	
					F/IDU 45	F/IDU 15.6% (5.0-26.2)	
					F/IDU needle-sharing 26	F/IDU needle sharing 19.2% (4.1-34.3)	
					F/IDU/non-needle-sharing 19	F/IDU non-needle-sharing 10.5% (0-24.3)	
Quebec, Roy (71) Street, 1994-present	Montreal street-involved youth who had a history of ever injected drugs Prevalence study: youth aged between 13-25 years Cohort study: youth aged between 14-25 years	convenience voluntary anonymous	Imposible to compute estimated to be zero	95/01-95/12	**Prevalence study**		• The prevalence study has been completed. • The study is now in its 2nd phase as a cohort study (started in January 1996) which monitors HIV prevalence, incidence and behavioural changes over time.
					IDU 332 Non-IDU 587	IDU 3.9% (2.2-6.4) Non-IDU 0.68% (0.2-1.9)	
				95/01-2000/03	**Cohort study**		
					HIV prevalence at enrollment		
					IDU 470 Non-IDU 542	IDU 2.3% (1.2-4.2) Non-IDU 0.6% (0.2-1.7)	
					Incidence density		
					IDU 1,297.40 PY Non-IDU 1,030.65 PY	IDU 1.2 per 100 PY (0.65-1.91) Non-IDU 0.10 per 100 PY (0.003-0.54)	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.3 INJECTION DRUG USERS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Quebec, Alary & Hankins (22) IDU, 1994-present	Multiple sites in the province of Quebec & Ottawa Active IDUs (who injected in last 6 months) recruited from NEP programs and outside NEP programs. *Year of site implementation* Sites in Quebec in 1994 Sites in Montreal, Saguenay/ Lac St-Jean, Monteregie, . Abitibi/Temiscamingue in 1995 Sites in Ottawa in 1996 Sites in Hull in 1997 Sites in Estrie in 1998 Sites outside NEP in Quebec and Montreal in 1999 Sites in Mauricie/Centre du Quebec in August 2000 Urban sites: Hull, Ottawa, Montreal, Quebec, Sherbrooke, and IDUs recruited in Monteregie but live in Montreal areas Semi-urban sites: Saguenay Lac St-Jean, Abitibi/ Temiscamingue,Mauricie, Centre du Quebec, and IDUs recruited in Monteregie (Saliva testing)	convenience voluntary	Unk	1995-2000	**Prevalence rate**		• The study is ongoing. • Questionnaire comprises 24 common core questions on demographic, injection practices, sexual behaviours. • Factors associated with HIV prevalence were (multivariate analysis, p<=0.05): * Cocaine as the most often injected drug in the last 6 months and had injected <6 years (OR=6.1) * Cocaine as the most often injected drug in the last 6 months and had injected > 6 years (OR=21.1) * Not using cocaine as the most often injected drug in the last 6 months but had injected > 6 years (OR=8.8) * Injecting with borrowed dirty needles from strangers (OR=1.6) * Women involved in sex trade (OR=1.4) * Men having male and female sexual partners (OR=1.6) * Men having male sexual partners only (OR=2.6) * Men having female or male sexual partners (OR=3.0) • Factors associated with HIV incidence: * Cocaine as the most often injected drug in the last 6 months and had injected <6 years (OR=3.5) * Cocaine as the most often injected drug in the last 6 months and had injected > 6 years (OR=6.0) * Not using cocaine as the most often injected drug in the last 6 months but had injected > 6 years (OR=4.0) * Injecting with strangers (OR=2.0) * Injecting with borrowed dirty needles (OR=2.3) * Male to male prostitution (OR=2.0) • Among first time participants in Montreal, downward trends in needle borrowing (45.1% vs 34.9%, p=0.0001) were accompanied by a decline in HIV prevalence (13.7% vs 12.5%, p=0.04). Among repeaters, declines in needle borrowing were seen in Quebec City (43.4% vs 34.8%, p=0.005) accompanied by a decline in HIV incidence (5.1 vs 1.1 per 100 PY, p=0.04)
					Participated 6,387	Overall 14.5% (13.6-15.4)	
					Males 4,666	Males 15.4%	
					Females 1,568	Females 11.9%	
					NEP attenders 6,002	NEP attenders 12.9% (12.1-13.8)	
					Non-NEP attenders 377	Non-NEP attenders 5.9% (3.8-8.9)	
					Repeaters 1,603	Repeaters 13.6% (12.0-15.4)	
					Non-repeaters 4,437	Non-repeaters 12.2% (11.2-13.1)	
				1995-2000	**Prevalence rate by site**		
					Urban sites 5,868	Urban sites 15.4% (14.0-15.8)	
					Semi-urban sites 519	Semi-urban sites 4.7% (3.1-7.0)	
					Montreal 2,719	Montreal 16.7% (15.3-18.1)	
					Quebec 1,888	Quebec 10.3% (9.0-11.7)	
					Ottawa 968	Ottawa 20.1% (17.6-22.8)	
					Hull 187	Hull 21.5% (16.0-28.2)	
					Monteregie 156	Monteregie 11.0% (6.8-17.0)	
					Saguenay/Lac St-Jean 130	Saguenay/Lac St-Jean 0.7% (0.0-4.6)	
					Abitibi/Temiscamingue 123	Abitibi/Temiscamingue 7.4% (3.6-13.9)	
					Estrie 140	Estrie 7.6% (4.0-13.5)	
					Mauricie/Centre du Quebec 76	Mauricie/Centre du Quebec 2.6% (0.5-10.0)	
					Trends in HIV prevalence, Montreal		
				1995	497	13.7%	
				1996	803	18.5%	
				1997	443	21.8%	
				1998	238	20.5%	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.3 INJECTION DRUG USERS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
				1999	244	14.7%	
				2000	448	17.9%	
					Trends in HIV prevalence, Quebec City		
				1995	415	9.2%	
				1996	407	6.6%	
				1997	425	7.3%	
				1998	171	7.6%	
				1999	150	8%	
				2000	162	14.8%	
					Trends in HIV prevalence, Ottawa/Hull		
				1996	187	18.2%	
				1997	256	21.5%	
				1998	350	17.4%	
				1999	160	21.3%	
				2000	189	13.2%	
					Trends in HIV prevalence, Abitibi/Temiscamingue, Monteregie, Saguenay/Lac St-Jean		
				1995	35	5.7%	
				1996	46	2.2%	
				1997	125	6.4%	
				1998	83	3.6%	
				1999	69	8.7%	
				2000	34	5.9%	
					Trends in HIV prevalence, Network excluding Hull/Ottawa/Sherbrooke/Mauricie Centre du Quebec		
				1995	947	11.4	
				1996	1,256	13.2%	
				1997	993	11.5%	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.3 INJECTION DRUG USERS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
				1998	492	10.4%	
				1999	463	8.9%	
				2000	604	12.7%	
				1995-2000	**Incidence rate by recruitment site (Rate per 100 PY)**		
					All sites 1,386 initially HIV-negative (2,575 PY)	All sites 4.8 (3.9-5.6)	
					Quebec City 549 (1,151 PY)	Quebec City 3.2 (2.2-4.2)	
					Montreal 555 (960 PY)	Montreal 6.0 (4.5-7.6)	
					Ottawa-Hull 214 (331 PY)	Ottawa-Hull 7.0 (4.1-9.8)	
					Semi-urbains 68 (133.1 PY)	Semi-urbains 3.8 (0.5-7.0)	
					Trends in HIV incidence, Network (Rate per 100 PY)		
				1995	232.2 PY	13.1	
				1996	479.0 PY	27.9	
				1997	610.9 PY	28.8	
				1998	535.7 PY	25.4	
				1999	425.4 PY	17.9	
				2000	176.8 PY	9.3	
					Trends in HIV incidence, Montreal (Rate per 100 PY)		
				1995	80.7 PY	5.6	
				1996	179.6 PY	13.8	
				1997	211.1 PY	17.2	
				1998	188.0 PY	9.6	
				1999	160.3 PY	6.1	
				2000	86.6 PY	5.7	

TYPE OF STUDY 6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS 6.3 INJECTION DRUG USERS							
Study Name, Investigator	**Population Sites**	**Sampling**	**Refusal**	**Year**	**N**	**Main HIV Prev./ Inc. Result**	**Comments**
					Trends in HIV incidence, Quebec City (Rate per 100 PY)		
				1995	144.3 PY	7.5	
				1996	254.1 PY	9.3	
				1997	285.4 PY	6.9	
				1998	217.9 PY	8.1	
				1999	156.7 PY	4.0	
				2000	54.6 PY	0.6	
					Trends in HIV incidence, Ottawa/Hull (Rate per 100 PY)		
				1996	32.1 PY	4.8	
				1997	87.6 PY	4.6	
				1998	93.1 PY	5.7	
				1999	76.8 PY	5.9	
				2000	22.5 PY	2.0	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.3 INJECTION DRUG USERS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Quebec, Hankins (26) IDU, 1990-present	CACTUS- Montreal needle exchange	Injection drug users visiting CACTUS on one randomly chosen evening per week (3hrs)	75.7% based on all visits to date		**Prevalence**		• Seroprevalence rates appear to increase slowly over 10 years while HIV incidence remains high.
				1990	480	10.6% (8.0-13.8)	
				1991	403	14.9% (11.6-18.8)	• In 1996, a striking difference in HIV prevalence was observed by gender: 23.7% for males vs 8.8% for females.
				1992	332	16.3% (12.5-20.7)	
				1993	423	15.2% (11.9-19.0)	• Factors associated with seroconversion among IDU attending CACTUS:
				1994	512	18.6% (15.3-22.2)	* being male * shooting up with a used needle * cocaine use * cocaine injection in last 7 days * age at first injection: <25 for females and >25 for males
				1995	239	13.0% (8.7-17.2)	
				1996	565	17.0% (13.9-20.1)	
				1997	317	20.5% (16.1-25.0)	• The study is now part of the Quebec SurUDI Surveillance Network (see Alary (22)).
				1998	213	18.3% (13.1-23.5)	
				1999	141	17.0% (10.8-23.2)	
				2000	523	17.8% (14.5-21.1)	
				1995-2000	1,998	17.4% (15.8-19.1)	
					Incidence density (Rate per 100 PY)		
				1990	50.5 PY	12.7 (4.4-28.60	
				1991	97.9 PY	8.9 (3.5-17.5)	
				1992	119.3 PY	8.0 (3.5-15.4)	
				1993	146.9 PY	5.5 (2.3-11.6)	
				1994	160.6 PY	6.7 (3.0-12.3)	
				1995	38.4 PY	9.3 (0.0-18.9)	
				1996	99.3 PY	7.2 (1.9-12.5)	
				1997	111.4 PY	8.2 (2.9-13.6)	
				1998	98.5 PY	4.4 (0.3-8.6)	
				1999	82.5 PY	3.7 (0.0-7.8)	
				2000	52.6 PY	7.1 (0.0-14.3)	
				1995-2000	507.8 PY	6.1 (4.0-8.3)	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.3 INJECTION DRUG USERS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Quebec, (68) IDU Parent, 1993-94 Poulin, 1994-present	Quebec City Needle exchange attenders Eligibility criteria • Current IDU (have injected in the previous 6 months) • Ex-injectors (haven't injected in the previous 6 months) • new attenders: attending NEP < 2 months • former attenders: attending NEP >2 months HIV testing with counselling (saliva) 97/02-97/04: participants also screened for Chlamydia and Gonorrhea (urine)	convenience voluntary (T-shirt as an incentive)	Unk.		**Feasibility phase**		• 2 variables associated with high prevalence in men: men who have sex with men and prostitution • Significant difference in mean length of injection drug use between HIV+ and HIV- persons (9.1 vs 6.3 years). • The pilot phase ended in April 1994. The study is now part of the Quebec SurIDU Surveillance Network (see Alary (22)). • Factors associated with HIV prevalence (regression logistic analysis): * Attending NEP > 2 months * History of incarceration * Sharing needle with an HIV+ person * Age * High frequency of injecting in shooting gallery * History of same sex partners in men • Factors associated with HIV seroconversion: * Ever shared needle (p=0.08) * For men, history of same sex partners • During 97/02-97/04: significant difference in prevalence between current IDU and ex-injectors (9.8% vs 5.5%, p<0.01) • The study is now part of the Quebec SurvUDI Surveillance Network (see Alary (22)).
				93/19-94/03	Total 300 Males 212 Females 86	Overall rate: 10.1% (6.9-14.1) Males 10.8% (7.0-15.8) Females 8.1% (3.3-16.1)	
					After the feasibility phase		
				94/10-95/02	338	8.3% (5.6-11.7)	
				95/08-95/11	344	11.6% (8.4-15.5)	
				96/04-96/05	324	13.0% (9.5-17.1)	
				96/09-96/11	347	7.8% (5.2-11.1)	
				94/10-96/11	Total 1,032 Males 765 Females 267 Recent attenders 405 Former attenders 627	Overall 8.7% (7.1-10.6) Males 9.0% (7.1-11.3) Females 11.6% (8.0-16.1) Recent attenders 2.9% (1.5-5.1) Former attenders 12.4% (10.0-15.3)	
				97/02-97/04	Total IDU 347 Males 251 Females 96	Overall 9.8% (6.9-13.4) Males 8.0% (4.9-12.00) Females 14.6% (8.2-23.2)	
					Incidence density		
				94/10-96/11	260 initial HIV- (344.1 PY)	16 seroconverted 4.6 per 100 PY (2.7-7.4)	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.3 INJECTION DRUG USERS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Quebec, Lamothe & Bruneau (23), IDU, 1988-present	Montreal Treatment Non-treatment IDU who injected in last 6 months Cohort study participants are followed up every 6 months	convenience voluntary	1.1-1.3% Mean f/u time 36 mos		**Prevalence rate by year**		• Ongoing recruitment • During 1988-98: 80% of participants were males; mean age of participants at entry was 33 years; 43% were in treatment and 49% had frequented NEP in the last 6 months. • Factors associated with HIV seroconversion: * Cocaine use (OR=5.42); other drugs (OR=3.01) drug of reference is heroine use * Injecting <30 times (OR=1.63) 30-100 times in last 6 months (OR=2.51) >100 times (OR=3.19) * Having > 1 sharing partner (OR=1.60) * Having 1 sharing partner per month (OR=1.34) * Sharing with HIV-infected persons (OR=1.74) * Booting (OR=1.49) * Not under treatment * Unstable housing (OR=1.52) * Injecting while in prison (OR=1.51) • The study also looks at social networks of NEP attenders. Qualitative analysis found that NEPs are frequented by high risk IDUs; that both HIV-positive and negative NEP attenders maintained high risk behaviours; and NEPs seemed not to be encounter places for meeting new sharing partners. • During the period (98/01-2000/04): factors associated with seroconversion were: cocaine injection, increasing age, heterosexual relations with HIV+ partner among men. HIV incidence was not associated with NEP or pharmacy attendance.
				88/09-2000/09	Total 3,136	Overall 11.0% (10.0-12.2)	
				88/09-89/09	136	5.9% (3.0-11.2)	
				89/09-90/09	285	9.5% (6.6-13.4)	
				90/09-91/09	184	17.4% (12.6-23.5)	
				91/09-92/09	258	11.2% (7.9-15.7)	
				92/09-93/09	295	13.2% (9.8-17.6)	
				93/09-94/09	336	8.6% (6.1-12.1)	
				94/09-95/09	299	13.0% (9.7-17.3)	
				95/09-96/09	340	10.3% (7.5-14.0)	
				96/09-97/09	284	8.8% (6.0-12.7)	
				97/09-98/09	281	11.7% (8.5-16.0)	
				98/09-99/08	323	9.9% (7.1-13.7)	
				99/09-2000/09	118	15.7% (10.1-23.4)	
					Incidence density (rate per 100 PY)		
				1988	5.7 PY	0	
				1989	83.6 PY	3.6 (0.7-10.5)	
				1990	242.7 PY	3.3 (1.4-6.5)	
				1991	327.5YY	6.4 (4.0-9.8)	
				1992	433.5 PY	4.2 (2.5-6.6)	
				1993	539.6Y	2.4 (1.3-4.1)	
				1994	647.9 PY	3.4 (2.2-5.2)	
				1995	733.4 PY	3.4 (2.2-5.0)	
				1996	808.7 PY	2.7 (1.7-4.1)	
				1997	862.8 PY	3.7 (2.5-5.2)	
				1998	888.7 PY	1.9 (1.1-3.1)	

TYPE OF STUDY 6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS 6.3 INJECTION DRUG USERS							
Study Name, Investigator	**Population Sites**	**Sampling**	**Refusal**	**Year**	**N**	**Main HIV Prev./ Inc. Result**	**Comments**
				1999	783.7 PY	3.1 (2.0-4.5)	
				2000	417.3 PY	5.8 (3.7-8.6) Could be overestimated	
				1988-2000	6,775 PY	229 seroconverted Cumulative incidence density 3.4 (3.0-3.9)	
					Prevalence by period of studied cohort		
				89/07-95/01	1,501	11.2% (9.7-12.9)	
				95/02-97/12	882	10.8% (8.9-13.0)	
				98/01-2000/12	704	11.4% (9.2-13.9)	
					Incidence density by period of entry in the cohort (Rate per 100 PY)		
				89/07-95/01	Total 1,065 NEP 549 Non-NEP 516	Total 3.5 (3.0-4.1) NEP 4.4 (3.6-5.4) Non-NEP 2.5 (1.9-3.3)	
				95/02-97/12	Total 574 NEP 295 Non-NEP 279	Total 3.4 (2.5-4.5) NEP 3.7 (2.5-5.4) Non-NEP 3.0 (1.8-4.6)	
				98/01-2000/12	Total 351 NEP 223 Non-NEP 128	Total 5.1 (3.1-7.9) NEP 6.5 (3.6-10.7) Non-NEP 3.2 (1.0-7.4)	
Nova Scotia, Lior (87) IDU, 1996-98	Cape Breton, Cross sectional survey of IDU and non-IDU who had IDU sexual partners Anonymous HIV testing with pre-/post-test counselling Participants recruited through community, provincial prison	convenience voluntary anonymous	Unk	96/10-97/02	IDU 102 Sexual partners of IDU 98	IDU 4.9% Sexual partners of IDU 1.02%	• The study has been completed. • The study collected detailed risk behaviour information of IDU and non-IDU who have had IDU sexual partners. • The study also measured seroprevalence of HBV, HCV.
PEI, Sweet (67) IDU, 1993-95	PEI Persons admitted to three addiction treatment facilities	convenience voluntary confidential	7%	94/01-95/01	Completed questionnaire 717 Provided saliva sample 700	No specimens tested positive	• 2% of participants refused saliva testing • The study also collects risk behaviour information. • The study has been completed

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.4 STD CLIENTELE

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
National, Elmslie (10) Female STD 1987-88	Women attending STD clinics in : Toronto, Edmonton, Montreal, Ottawa, Vancouver, Winnipeg	systematic voluntary	30%	1987	1,652	0.06%	• Rate was based on one positive sample. • The study has been completed.
National, Elmslie (11) Male STD 1988-89	Men attending STD clinics in: Toronto, Winnipeg, Montreal, Ottawa, Vancouver, Edmonton	anonymous unlinked	Ukn	1988	2,486	2.5%	• Most positives were from MSM. • The study has been completed.
B.C., Cook (16) STD, 1991-1992	British Columbia Leftover sera for VDRL testing	anonymous unlinked	Ukn	1991/05 to 1992/05	7,574 M 4,832 F 2,713	Overall 4.15% Males 6.29% Females 0.33%	• HIV infection rates vary considerably by gender, location and clinic type. • Male:Female HIV rate in this study is 19:1. • The family practice clinic results were probably skewed by submissions from gay males in Vancouver. • The study has been completed.
					By location		
					Vancouver 5,579 All others 1,995	Vancouver 5.40% All others 0.45%	
					By clinic type		
					STD clinic 3,518 Family pract.2,024 Others 5,542	STD clinic 3.21% Family practice 8.65% All others 0.47%	
B.C., Rekart (13) STD, 1989-92	Vancouver Blood submitted for HIV testing from an HIV clinic or an STD clinic			1989	684	3.5% 3.9% HIV Clinic 2.1% STD clinic	
	Vancouver Blood submitted for HIV testing from STD Clinic			1989-92	1,393	1.9% total	
				1989	102	2.0%	
				1990	349	2.9%	
				1991	591	1.5%	
				1992	351	1.7%	
Alberta, Romanowski (77) STD, 1994-95	Edmonton, Calgary STD clinics Leftover sera submitted for VDRL, Hepatitis B, HIV testing	anonymous unlinked	M 29% F 24.6%	94/05-95/05	MSM 538	MSM 12.3%	• The study also collected risk behaviour information • Characteristics of HIV infected women: injection drug use in the last 12 months 60% • Characteristics of HIV infected men: MSM 72%, IDU in the last 12 months 20% • The study has been completed
					M/Hetero 3,227	M/Hetero 0.8%	
					F/Lesbian 143	F/Lesbian 0.0%	
					F/Hetero 2,772	F/Hetero 0.2%	
					Total 6,668	Overall 1.5%	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.4 STD CLIENTELE

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Manitoba, Sekla (5) Lab, 1990-92	Manitoba province wide STD patients Leftover sera for VDRL testing	anonymous unlinked	<1%	1990	Females 7,929 Males 7,757	F 0.00076% (0.00028-0.00165) M 0.01430% (0.01165-0.01697)	• The study has been completed.
Manitoba, Blanchard (72) STD, 1994-95	Manitoba province wide STD patients Leftover sera for VDRL testing	anonymous unlinked	0.03%	94/08-95/08	Females 5,314 Males 5,362	Females 0.09% (0.03-0.22) Males 0.80% (0.58-1.08)	• The study has been completed.
Ontario, Fearon (18) STD, 1991-93	Ontario Blood submitted to provincial lab for VDRL from patients at high risk for STD's	unlinked anonymous	None	1991-93	Total 20,060 Males 10,861 Females 9,719	Overall 3.6% Males 6.5% Females 0.4%	• The overall prevalence in STD patients is higher than the rate of approximately 1% seen in the voluntary testing population. • The highest prevalence rates were found in males age 30-39 (10.9%) and 40-49 (10.2%).
Quebec, Alary (12) STD, 1985-88	Montreal Clients of Clinique l'Actual	retrospective chart review	None	1985-88	2,709	Overall 15.8%	• Overall prevalence decreased with time. • The proportion of women and of heterosexual individuals increased with time.
P.E.I., Abbott (19) STD, 1991-92	P.E.I. All persons identified by physician as being at high risk	anonymous unlinked 95% random	Ukn	91/11-92/10	Total 464 Males 110 Females 354	Overall 0.2% Males 0.9% Females 0.0%	• Rate based on 1 HIV (+); therefore, large confidence interval
Nova Scotia, Pereira (14) STD, 1988-89	Halifax STD clinic patients (stored sera collected routinely for syphilis)	unlinked anonymous	Ukn	1980	584	0%	Overall rate f or : • homosexual men (N=199) : 11.1% • heterosexual men (N= 1884): 0.3% • women (N= 874): 0.0%.
				1981	358	0.8%	
				1982	394	1.2%	
				1983	390	1.3%	
				1984	336	1.8%	
				1985	307	1.3%	
				1986	297	1.3%	
Nova Scotia, Haase (20) STD, 1992-94	Halifax STD clinic patients	unlinked anonymous	None	1992-94	Total 927 Males 602 Females 325	Overall 0.1% Males 0.2% Females 0.0%	• Result was based on one positive.

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.5 INMATES

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
B.C., Rothon (17) Inmates, 1992	British Columbia Adult inmates admitted to provincial correctional centres	unlinked voluntary	Overall 8.7% M 8.8% F 8.0% F/Native 13% F/Non-Native 5.5% M/Native 7.6% M/Non-Native 9.1% IDU 12.9% Non-IDU 6.8%	92/10-92/12	Admitted 2,719 Saliva tested 2,482 Males 2,332 Females 150 Youth < 20 years 208	Admitted 1.0% Saliva tested 1.1% (0.8-1.6) Males 1.0 (0.6-1.5) Females 3.3% (1.2-8.0) Youth 0.5%	• Women had a higher rate than men (p=0.023); this could be explained by the fact that more women than men reported a history of injection drug use. • Prevalence among IDU was higher than that among non-IDU (2.4% vs 0.6%, p<0.001). • Higher refusal rates of HIV testing in Native women and IDU. • The study has been completed.
B.C., Rothon (73) Inmates, 1994	British Columbia Young offenders (aged 12-19 years)Youth custody centres	voluntary unlinked	2.2% participants refused HIV testing	94/01-94/12 (12 weeks)	Participants 806 Saliva tested 788	Overall 0.25% (0.04-1.02)	• Results were based on two positives. • Ethnic origin (Native vs non-Native) and risk behaviour information were collected on all youths admitted including those who refused HIV testing. • The study has been completed
Ontario, Calzavara (53) Inmates, 1992-93	Inmates in 42 Ontario jails & detention centres (men, women, young offenders)	anonymous unlinked	1.1%	93/02-93/07	Adult males 9,201 Adult females 1,302 Young offenders 1,331 M/IDU 1,184 F/IDU 262	Adult males 0.99% (0.79-1.19) Adult females 1.23% (0.63-1.83) Young offenders 0.00% (0.0-7.1) Adult males/IDU 3.63% (2.57-4.7) Adult females/IDU 4.2% (1.77-6.63)	• Using urine samples from all persons admitted to jails from February to August 1993. • The study has been completed.
Ontario, Ford (80) Inmates, 1993	Ontario Inmates in a federal medium security prison for men (average sentence of 4.6 years)	voluntary anonymous	50%	1993/04	Eligible 594 Tested 297	1.01% (0.13-2.17)	• The study has been completed. • HIV testing was done with informed consent and pre-test counselling.
Ontario, Ford (88) Inmates, 1994	Ontario Inmates in a federal multilevel security prison for women (all served >2 years of sentence)	voluntary anonymous linked	13.1%	1994/06	Eligible 130 Tested 113	0.88%	• The study has been completed • Hepatitis C prevalence was 39.8%
Ontario, Ford (95) Inmates, 1998	Ontario Inmates in two federal prisons for men Pre-test counseling offered to inmates	voluntary anonymous	Prison A 32% Prison B 57%	1998/03	Prison A 355 Prison B 84	Prison A 1.7% Prison B None was HIV positive	• The study also collects risk behavior information • Hepatitis C prevalence 33% in Prison A and 23% in Prison B • The study has been completed

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.5 INMATES

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Quebec, Hankins (52) Inmates, 1988-89	Women incarcerated in a medium security prison (Montreal)	voluntary confidential informed consent	Unk	1988-89	394	6.9% (4.6-9.8)	• Injection drug use was predominant risk factor for HIV infection. • Sexual or needle contact with a seropositive person, self-reported genital herpes & having a regular sexual partner who injected drugs were also associated with HIV seropositivity.
	Men & women incarcerated in a medium security prison (Montreal, Laval)	voluntary confidential informed consent	Unk	1990-92	Total 1,446 Males 972 Females 474	Overall 5.6% (4.5-6.9) Males 3.6% (2.5-5.0) Females 9.8% (7.2-12.8)	• Risk factors for HIV+ among female inmates/IDU: * needle contact with a HIV+ person * longer history of condom use in women (indicative of prostitution) * less frequent needle cleaning • Risk factors for HIV+ among male inmates/IDU: * needle contact with a HIV+ person * sexual contact with a HIV+ person * higher frequency of injection drug use
					Male IDU 444 Female IDU 249	Male IDU 7.7% (5.4-10.5) Female IDU 16.5% (12.1-21.7)	
Quebec, Alary (74) Inmates, 1994	Inmates admitted to a provincial prison (sentence of less than two years)	voluntary anonymous	5%	1994	Total 618 Males 499 Females 119	Overall 3.2% 1.8-4.59) Males 2.2% (0.9-3.5) Females 7.6% (2.8-12.3)	• All HIV positive men were IDU. • Seven of the 9 positive women were IDU. • The study has been completed.
Nova Scotia, Correctional Services Canada (90) Inmates, 1997-1998	Springhill Men and women incarcerated in a medium security federal prison	voluntary confidential	- one refused HIV testing - one refused all serology tests	97/04-97/12	Total 194 Total tested 192	Tested 1%	• The study also collected risk behaviour information and measured HBV, HCV prevalence rates. • HIV testing was done with pre/post-test counselling. • The study has been completed.
					IDU 94 Non-IDU 100	IDU 2.2% Non-IDU 0%	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.6 STREET PEOPLE

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
National, Shields (98) Street, 1999-present	Street youth aged 15-24 years frequenting drop-in centers who have been out of their home for three sequential nights or more Seven sites across Canada (Vancouver, Edmonton, Saskatoon, Winnipeg, Toronto, Ottawa & Halifax)	convenience voluntary	Unk	2000	Recruited 1,733 Ever tested for HIV 922	0.4% (0.1-1.0)	• The study is part of the STD Sentinel Surveillance aimed at Canadian street youth. It collects detailed risk behaviour information and estimates prevalence of gonorrhea, chlamydia, hepatitis B, hepatitis C, Herpes, HTLV-1, and HTLV-2 among street youth. • Phase II was completed in 2000. Phase III is in progress. • 4.2% of studied participants were HCV+.
B.C., Rekart (32) Street, 1988-92	Vancouver, 4 Outreach sites Street-involved persons	convenience voluntary	Unk	1988-92	3,516	Overall 3.2%	• Prevalence in those tested was higher in bisexuals, remained high in transexuals, homosexuals and remained low in IDU and prostitutes
				1988	286	3.8%	
				1989	1,119	2.9%	
				1990	612	5.1%	
				1991	663	2.4%	
Ontario, Read (33) Street, 1991-92	Street involved youth Finger prick and/or saliva	convenience voluntary	1%	1991	698	2.3% seroprevalence	• Primary risks: * youth who had low level of knowledge on HIV route of transmission * prostitution * homosexuality * IDU • Young females interviewed were quite likely to be pregnant or wanted to become pregnant. • The study has been completed.
Quebec, Roy (35) Street, 1991-94	Rehabilitation centers for Adolescents in difficulty" (12-21 years old), Metropolitain Montreal & Hospital adolescent clinic (saliva testing)	systematic recruitment unlinked anonymous voluntary	8.8%	91/11-93/11	1,904?	0.1%(0.0-0.2)	• The study also collected sexual and drug use behaviours • Prevalence was based on two positives • The study has been completed

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.6 STREET PEOPLE

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Quebec, Roy (71) Street, 1994-present	Montreal Prevalence study: street involved-youth aged between 13-25 years Cohort study: street involved-youth aged between 14-25 years Saliva testing	convenience voluntary anonymous	Prevalence study: impossible to compute, estimated to be zero Cohort study: lost to follow-up=6 per 100 PY		**Prevalence study**		• The prevalence study has been completed. • Factors associated with HIV prevalence: * having ever injected drugs * being a male commercial sex worker * having had HIV+ sexual partners * being older than 20 years of age * having had sexual partners originating from a foreign country. • The cohort study is ongoing. It monitors behavioural changes over time. • As of 2000/30/31,15 youth in the cohort serconverted. 13/14 seroconverters reported having ever injected drugs and 14/14 reported high risk sexual behaviours. None of seroconverters reported MSM as an only risk factor??
				95/01-95/12	919	1.8%(1.1-2.9)	
				Cohort study: Prevalence at enrollment			
				95/01-2000/03	T 925 M 633 F 292	Total 1.4% (0.8-2.4) Males 1,7% (0.9-3.1) Females 0.7% (0.1-2.5)	
				1995	301	1.3% (0.4-3.4)	
				1996	212	1.4% (0.3-4.1)	
				1997	132	1.5% (0.2-5.4)	
				1998	117	0.9% (0.1-4.7)	
				1999	163	1.7 (0.4-5.3)	
				Cohort study: Incidence density (Rate per 100 PY)			
				95/01-2000/03	1,598.9 PY	0.72 (0.40-1.19)	

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.7 SEX TRADE WORKERS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
B.C., Rekart (55) Lab, 1985-94	Vancouver Women seen at HIV testing clinics who were involved in sex trade	voluntary	Unk	1985-88	Prost. 255 Prost./IDU 213	Prostitution alone 1.5% Prostitution/IDU 1.4%	
				1989-93	Prost. 1,783 Prost./IDU 1,542	Prostitution alone 0.8% Prostitution/IDU 4.0%	
				85/10-94/03	Prost. 2,108 Prost./IDU 1,855	Prostitution alone 0.95% Prostitution/IDU 3.94%	
B.C., Rekart (32) Street, 1988-92	Vancouver, 4 Outreach Sites Street-involved persons who were sex trader workers	convenience voluntary	Unk	1988-92	825	6.4%	• For street persons, sex between males is an important risk factor.
				1988	216	4.9%	
				1989	345	9.4%	
				1990	138	4.8%	
				1991	124	8.0%	
				1992	93	6.2%	
B.C, Hogg & Miller (81), 1995-present	Vancouver Cohort of negative MSM at enrollment aged 18-30 years who were also involved in sex trade	prospective cohort voluntary	General lost to follow-up (denoting men >2 months late) 20%	95/05-2000/12	**Prevalence at baseline**		• Sex trade workers has a significantly higher HIV prevalence at baseline than non-sex trade workers ($p<0.001$). • HIV incidence was found to be significantly higher for sex trade workers than non-sex trade workers ($p=0.048$).
					MSM/Prost. 126 MSM/Non-prostit. 635	MSM/Prost. 7.3% MSM/Non-prostit. 1.1%	
					Incidence density (Rate per 100 PY)		
					MSM/Prost. 126 MSM/Non-prostit. 635	MSM/Prost. 2.8 MSM/Non-prostit. 0.9	
Ontario, Read (44) Street, 1989-91	Toronto Street youth seen at hospital or other clinics who were involved in sex trade	convenience voluntary	Unk	1989	43	2.3%	• Prevalence rate was based on 1 HIV (+). • The study has been completed.
Ontario, Leonard (99) IDU, 1996-present	Ottawa Needle Exchange Program Female IDUs who were involved in sex trade	convenience voluntary	none	96/06-99/03	F/Prost-non IDU 67 F/Prost-IDU 118	F/Prost-non IDU 16.4% F/Prost-IDU 18.6%	• Difference in HIV prevalence between those being involved in sex trade and those not being involved in sex trade was not statistically significant ($p=0.70$)

TYPE OF STUDY
6. STUDIES IN POPULATIONS WITH HIGH RISK BEHAVIOURS
6.7 SEX TRADE WORKERS

Study Name, Investigator	Population Sites	Sampling	Refusal	Year	N	Main HIV Prev./ Inc. Result	Comments
Quebec, Hankins (52) Inmates, 1988-89	Women in medium security prison in Montreal who were involved in sex trade or involved in sex trade/IDU	convenience voluntary	Unk	1988		Overall 12.9% (6.6-21.9)	• The study has been completed.
				1989	85	Prost/non IDU 5.3% (0.1-26.0) Prost/IDU 15.2% (7.5-26.1)	
Quebec, Lamothe (23) IDU, 1988-present	Montreal IDU under treatment and IDU not under treatment who were involved in sex trade	convenience voluntary	Unk	1989-93	Prost/IDU 213 Non-prost/IDU 694	Prost/IDU 21.6% (16.6-27.6) Non-prost/IDU 11.4% (9.2-14.0)	• Prevalence in Prost./IDU was significantly higher than in Non-prost./IDU ($p<0.001$) • Prevalence in Male prost./IDU was higher than in Female prost./IDU ($p=0.049$) • The study is ongoing.
Quebec, Roy (71) Street, 1994-present	Montreal Street-involved youth aged between 13-25 years who had engaged in sex trade	convenience voluntary	Impossible to compute estimated to be zero	95/01-95/12	M/Prost.101 F/Prost.135	M/Prostitute 7.4%(3.8-13.5) F/Prostitute 1.0%(0.1-6.2)	• All HIV+ Female/Prostitute were IDU • 9 of the 10 HIV+ Male/Prostitute were IDU • The study is ongoing.
Quebec, Alary (74) Inmates, 1994	Inmates admitted to a provincial prison (sentence of < 2 years) who had engaged in sex trade	convenience voluntary	5%	1994	41	12.2% (2.2-22.2))	• All HIV+ prostitutes were IDU. • The study has been completed.
Quebec, Alary (22) IDU, 1994-present	Quebec province-wide & Ottawa Current IDU who were also involved in sex trade 97/02-97/04: participants at the site Pointe de Repere in Quebec City also screened for Chlamydia and Gonorrhea	convenience voluntary	Unk	94/10-98/03	F/Prost. .506 F/non Prost. 556 M/Prost. 268 M/non Prost. 2,734	F/Prost. 14.8% F/non-Prost. 6.1% M/Prost. 15.7% M/non-Prost. 15.4%	• The study is ongoing.
				97/02-97/04 for the site Pointe de Repere only	F/Prost. 48 F/non-Prost. 48	F/Prost. 14.6% (6.1-27.8) F/non-Prost. 14.6% (6.1-27.8)	
BC and Quebec, Spittal and Bruneau (84), IDU, 1995-present	Female IDUs participating in two cohorts of IDU who are involved in sex trade (STW)	convenience voluntary with informed consent (paid)	Unk	99/09-2000/09	**Vancouver**		
					F/Prost. 125 F/non-Prost. 260	F/Prost. 36.8% F/non-Prost. 39.6%	
					Montreal		
					F/Prost. 57 F/non-Prost. 118	F/Prost. 10.5% F/non-Prost. 11.9%	

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Appendix C: List of Titles of *Epi Updates*

The Epi Updates can be obtained from the Bureau Website at http://www.hc-sc.gc.ca/hpb/lcdc/bah

National HIV Prevalence and Incidence Estimates for 1999: No Evidence of a Decline in Overall Incidence

Prevalent HIV infections in Canada: Up to One-Third May Not be Diagnosed

HIV Infection Reporting in Canada

HIV and AIDS Among Youth in Canada

HIV and AIDS Among Women in Canada

Perinatal Transmission of HIV

AIDS/HIV Ethnicity in Canada

HIV/AIDS Among Aboriginal Persons in Canada Remains a Pressing Issue

HIV Infections Increasing Among MSM in Canada

HIV/AIDS Among Injecting Drug Users in Canada

Risk Behaviours Among Injecting Drug Users in Canada

Oral Sex and the Risk of HIV Transmission

HIV Strain Surveillance in Canada

Primary HIV Anti-retroviral Drug Resistance in Canada

Nonoxynol-9 and the Risk of HIV Transmission

Myths & Misconceptions: What You Should Know About HIV and AIDS

Appendix D: List of Titles of Meeting Proceedings

1st Annual Aboriginal HIV/AIDS Surveillance and Research Meeting (March 12-13, 1996, Toronto)

2nd Annual Aboriginal HIV/AIDS Surveillance and Research Meeting (May 26-27, 1997, Ottawa)

3rd Annual Aboriginal HIV/AIDS Surveillance and Research Meeting (May 29-30, 1998, Montreal)

Focus Group Meeting on Aboriginal HIV Estimates (February 6-7, 2001, Dartmouth)

1st Annual Scientific Consensus Meeting on HIV Antibody Prevalence (October 6-7, 1992, Toronto)

2nd Annual HIV/AIDS Epidemiology Research and Surveillance Meeting (November 23-25, 1993, Ottawa)

3rd Annual HIV/AIDS Epidemiology Research Meeting (November 14-15, 1994, Montreal)

4th Annual HIV Epidemiology Research Meeting (December 7-9, 1995, Banff)

5th Annual HIV Epidemiology Meeting (December 4-6, 1996, Toronto)

6th Annual HIV Epidemiology Meeting (November 20-22, 1997, Quebec City)

7th Annual HIV Epidemiology Meeting (November 12-14, 1998, Hull, Quebec)

The Joint HIV/AIDS/STD Annual Surveillance Meeting (November 17-20, 1999, Calgary)

9th Annual HIV/AIDS Epidemiology and Surveillance Meeting (November 16-18, 2000, Halifax)

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